



**Home Inspection  
and Warranty  
Programs**

**Supplemental  
Appendices**

U.S. Department of Housing  
and Urban Development

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**A STUDY OF HOME INSPECTION  
AND WARRANTY PROGRAMS**

**VOLUME II. SUPPLEMENTAL APPENDICES**

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**For:**

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A.	STANDARD DEVIATIONS OF ESTIMATES . . . . .	
	A. Standard Deviations in Demand Tables . . . . .	
	B. Standard Deviations in Claims Rates Tables . . . . .	
	C. Standard Deviations in Claims Costs Tables . . . . .	
B.	PROFILES OF WARRANTY PROGRAMS . . . . .	
	A. American Home Guard . . . . .	
	B. American Home Shield . . . . .	
	C. AMC Home Protection Program . . . . .	
	D. Certified Home Inspection Program . . . . .	
	E. Electronic Realty Associates . . . . .	
	F. First American Home Protection Insurance . . . . .	
	G. Homestead Inspection Warranty Program . . . . .	
	H. Pacific Cal-West . . . . .	
	I. Rollins Home Care . . . . .	
	J. Saint Paul Home Protection . . . . .	
	K. Soundhome Assurance Program . . . . .	
C.	THE LEGAL HISTORY OF SELLER'S LIABILITY FOR REAL PROPERTY . . . . .	
	A. Inroads Against "Caveat Emptor" . . . . .	
	B. Implied Warranties Provided by Statutory Authority . . . . .	
	C. Implied Warranties as a Current Trend of United States Court Decisions . . . . .	
D.	TECHNICAL APPENDIX TO CHAPTER III . . . . .	
E.	TECHNICAL APPENDIX TO CHAPTER IV . . . . .	
	A. Adjustments to the Basic Cost Data . . . . .	
	1. Remodeling or Upgrading . . . . .	
	2. Voluntary Labor . . . . .	
	3. Inflation Adjustment . . . . .	
	B. Missing Data Adjustments . . . . .	
F.	TECHNICAL APPENDIX TO CHAPTER V . . . . .	
	A. Analytical Framework for Determining	

3.	Forecast of Resale Volume by Type of Mortgage Loan . . . . .	F-10
4.	Distribution of Sales Totals Among Market Segments . . . . .	F-12
5.	Estimation of Participation Rates by Market Segment . . . . .	F-14
C.	Claims Rates and Repair Cost Data . . . . .	F-14
D.	Administrative Cost Assumptions . . . . .	F-19
1.	Enrollment . . . . .	F-19
2.	Inspection Costs . . . . .	F-22
3.	Claims Processing Costs . . . . .	F-25
4.	Costs for Central-Office Staffing . . . . .	F-27
	THE ADMINISTRATIVE COST OF THE SECTION 518 PROGRAM . . . . .	G-1
A.	Estimation Procedures . . . . .	G-1
1.	Staff Cost . . . . .	G-2
2.	Nonstaff Costs . . . . .	G-10
3.	Total Administrative Cost Per Claim . . . . .	G-11
B.	Administrative Cost by Major Function . . . . .	G-13
C.	Applicability to Estimating HIW Costs . . . . .	G-15
	PROGRAM FOR INTEGRATED ANALYSIS POLICY SIMULATIONS . . . . .	H-1
	DATA COLLECTION METHODOLOGY . . . . .	I-1
A.	Introduction . . . . .	I-1
B.	Sampling for the Needs and Demand Surveys . . . . .	I-2
1.	Sample Composition . . . . .	I-2
2.	Stratification . . . . .	I-5
3.	Sample Size . . . . .	I-7
4.	Selection of the FHA Sample . . . . .	I-8
5.	Selection of the Non-FHA Sample . . . . .	I-9
6.	Preparation of the Samples . . . . .	I-16
C.	Survey Design and Operations . . . . .	I-19
1.	Development of the Survey Instruments . . . . .	I-19
2.	Organization and Staffing of Survey Operations . . . . .	I-21

- C. Survey Design and Operations (continued)
  - 3. Field Procedures . . . . .
  - 4. Quality Control Procedures . . . . .
  - 5. Coding . . . . .
  - 6. Sanitizing the Data Files . . . . .
  - 7. Survey Results . . . . .
- D. Data Collection Procedures for Private and Public Programs . . . . .
  - 1. Private Program Review . . . . .
  - 2. Public Program Review . . . . .

## Appendix A

A.1	Estimates of Active Demand at Medium Price and Approximate Standard Deviations . . . . .	A-2
A.2	Claims Rates and Approximate Standard Deviations . . . . .	A-5
A.3	Average Repair Costs and Approximate Standard Deviations . . . . .	A-7

## Appendix B

B.1	Comparison of Warranty Programs . . . . .	B-2
-----	---	-----

## Appendix D

D.1	Active Demand (Absolutely Certain) for Option S at Three Price Levels . . . . .	D-2
D.2	Latent Demand (Absolutely Certain Plus Very Likely) for Option S at Three Price Levels . . . . .	D-3
D.3	Active Demand (Absolutely Certain) for Two Year Option SM-1 at Three Price Levels . . . . .	D-4
D.4	Latent Demand (Absolutely Certain Plus Very Likely) for Option SM-1 at Three Price Levels . . . . .	D-5
D.5	Active Demand (Absolutely Certain) for Option SM-2 at Three Price Levels . . . . .	D-6
D.6	Latent Demand (Absolutely Certain Plus Very Likely) for Option SM-2 at Three Price Levels . . . . .	D-7
D.7	Active Demand (Absolutely Certain) for Option SMA at Three Price Levels . . . . .	D-8
D.8	Latent Demand (Absolutely Certain Plus Very Likely) for Option SMA at Three Price Levels . . . . .	D-9
D.9	Active Demand (Absolutely Certain) for Option MA at Three Price Levels . . . . .	D-1



at \$80 - \$120 if Buying Home Today . . . . . D-12

D.12 Preferred Period of Warranty Coverage . . . . . D-13

D.13 First Choice Among Three Types of Warranty Coverage . . . . . D-14

D.14 Preference Between Low Deductible High Cost vs.  
High Deductible Low Cost Warranty Plans . . . . . D-15

D.15 Preferred Warranty Payment Schedule . . . . . D-16

D.16 Preference Between Plans in Which Warranty Firm Sends  
Repairman vs. Arranging for Repairs Oneself . . . . . D-17

D.17 Proportion in Each Market Segment With Prior Awareness  
and Experience with Warranties . . . . . D-18

D.18 Active Demand (Absolutely Certain) for Option S  
at Three Price Levels . . . . . D-19

D.19 Latent Demand (Absolutely Certain Plus Very Likely)  
for Option S at Three Price Levels . . . . . D-20

D.20 Active Demand (Absolutely Certain) for Option SM-1  
at Three Price Levels . . . . . D-21

D.21 Latent Demand (Absolutely Certain Plus Very Likely)  
for Option SM-1 at Three Price Levels . . . . . D-22

D.22 Active Demand (Absolutely Certain) for Option SM-2  
at Three Price Levels . . . . . D-23

D.23 Latent Demand (Absolutely Certain Plus Very Likely)  
for Option SM-2 at Three Price Levels . . . . . D-24

D.24 Active Demand (Absolutely Certain) for Option SMA  
at Three Price Levels . . . . . D-25

D.25 Latent Demand (Absolutely Certain Plus Very Likely)  
For Option SMA at Three Price Levels . . . . . D-26

D.26 Active Demand (Absolutely Certain) for Option MA  
at Three Price Levels . . . . . D-27

E.1	Average Repair Costs of Problems Costing \$100 or More, by Age of House and Problem Type . . . . .	E-6
E.2	Average Repair Costs of Problems Costing \$100 or More, by House Price and Problem Type . . . . .	E-7
E.3	Average Repair Costs of Problems Costing \$100 or More, by Total Family Income and Problem Type . . . . .	E-8

## Appendix F

F.1	Existing Home Sales Volume . . . . .	F-6
F.2	Dollar Volume of Existing Single-Family Home Sales . . . . .	F-7
F.3	FHA 203 Loans Made on Existing Homes . . . . .	F-8
F.4	VA Primary Home Loans on Existing Properties . . . . .	F-8
F.5	Existing Home Sales by Type of Financing (number of units) . . . . .	F-9
F.6	Existing Home Sales by Type of Financing (proportion of units) . . . . .	F-10
F.7	Forecasts of Existing Home Sales by Type of Financing . . . . .	F-11
F.8	Estimates of FHA Activity . . . . .	F-12
F.9	Percentage of FHA Households Dropping FHA Financing Under a Mandatory HIW Program . . . . .	F-13
F.10	Potential Claims Rates Under Alternative HIW Programs, by Age of House (Cursory Inspection) . . . . .	F-15
F.11	Average Repair Costs Under Alternative HIW Programs, by Age of House (Cursory Inspection) . . . . .	F-16
F.12	Potential Claims Rates Under Alternative HIW Programs, by Age of House (Estimated Lower Bound of a Detailed Inspection) . . . . .	F-17

	Fiscal Years 1975-77 . . . . .	G-
G.2	Section 518 Workload Data, Fiscal Years 1975-77 . . . . .	G-
G.3	Administrative Cost Per Claim by Cost Category . . . . .	G-
G.4	Functional Breakdown of Average Administrative Cost . . . . .	G-

Appendix I

I.1	Non-FHA Sample Sites by Region . . . . .	I-
I.2	Results of Telephone Number Search . . . . .	I-
I.3	Problem Type Codes and Examples . . . . .	I-
I.4	HIW Survey Results by Survey Type and by Sample Type . . . . .	I-
I.5	Ineligible Sample Points by Reason of Ineligibility . . . . .	I-
I.6	HIW Non-FHA Survey Results by Survey Type and by County . . . . .	I-
	Part A. Needs Survey . . . . .	I-
	Part B. Demand Survey . . . . .	I-
I.7	Warranty Companies, Real Estate Industry Representatives, and Government Officials Contacted During the HIW Study . . . . .	I-

I.1	HUD Letter to Registrar of Deeds . . . . .	I-55
I.2	County Contact Information Sheet . . . . .	I-57
I.3	Information Sheet - Non-FHA Sample . . . . .	I-61
I.4	Record of County Files . . . . .	I-63
I.5	Information Sheet - FHA Sample . . . . .	I-67
I.6	Address Correction Form . . . . .	I-69
I.7	MPR Letter - Demand Sample . . . . .	I-71
I.8	MPR Letter - Needs Sample . . . . .	I-73
I.9	Return Postcard . . . . .	I-75
I.10	HUD Letter - Demand Sample . . . . .	I-77
I.11	HUD Letter - Needs Sample . . . . .	I-79
I.12	Needs Survey . . . . .	I-81
I.13	Demand Survey . . . . .	I-133
I.14	Example of Page from Master Log . . . . .	I-155
I.15	Record of Contacts . . . . .	I-157
I.16	QC Problem Sheet . . . . .	I-159
I.17	Interview with Representatives of Private Firms - Data for the Home Warranty and Inspection Study . . . . .	I-161



## APPENDIX A

### STANDARD DEVIATIONS OF ESTIMATES

In the assessment of the data from the surveys, attention must be given to the degree to which these results are subject to sampling error. Due to the large volume of data developed in the survey work and the short time available for the analysis, it has not been possible to develop estimates of the standard errors associated with all of the tables included in the text of the report. Standard errors have been computed, however, for representative examples of each of the three most important types of data used in our analysis: demand estimates, claims rates estimates, and repair cost estimates. The results of these calculations are reported in this appendix, and they can be taken as indicative of approximate standard errors for other similar data included in the text.

#### STANDARD DEVIATIONS IN DEMAND TABLES

Table A.1 shows by market segment the survey estimates of percentages of consumers who would purchase various HIW plans at medium-level prices. In each cell in the table the estimated standard error has been included in parentheses. Approximate 95 percent confidence intervals would extend plus and minus two standard deviations around the estimated percentages.

Market Segment	Alternative HIW Plans				
	S	SM-1	SM-2	SMA	MA
FHA, House < 10 Years Old	6.2% (1.7)	7.7% (1.9)	6.2% (1.7)	3.1% (1.2)	1.5% (0.9)
FHA, House 10-29 Years Old	10.5 (1.4)	7.0 (1.1)	7.2 (1.1)	5.7 (1.0)	1.9 (0.6)
FHA, House > 29 Years Old	8.9 (2.0)	5.4 (1.6)	5.9 (1.7)	4.5 (1.5)	1.5 (7.0)
FHA Total	9.2 (1.0)	6.8 (0.8)	6.7 (0.8)	4.8 (0.7)	1.8 (0.4)
Non-FHA, House < 10 Years Old	8.4 (2.4)	5.8 (2.0)	9.5 (2.5)	7.3 (2.2)	2.2 (1.2)
Non-FHA, House 10-29 Years Old	7.6 (1.9)	4.7 (1.5)	6.8 (1.8)	5.2 (1.6)	1.6 (0.9)
Non-FHA, House > 29 Years Old	8.5 (2.5)	5.3 (1.2)	6.9 (2.3)	4.5 (1.8)	1.6 (1.1)
Non-FHA Total	8.1 (1.0)	5.2 (0.7)	7.6 (0.9)	5.6 (0.8)	1.8 (0.4)

<sup>a/</sup> Demand estimates are taken from Tables D.2, D.4, D.6, D.8, D. of Appendix D and Table III.1 of Chapter III.

since each of these estimates is based on a relatively large number of observations drawn from a binomial distribution, the standard deviations shown in the table were computed by using the standard large-sample approximation for binomial distribution<sup>1/</sup> variances given by

$$SD = \sqrt{\frac{p(1-p)}{N}} \quad (1)$$

where

p is the estimated probability of a consumer in the cell demanding the HIW plan, and

N is the number of observations in the cell.

Calculation of standard deviations for the non-FHA sector of the market is complicated by the fact that these estimates are based on a sample which was clustered in 60 counties. The standard deviation for such a sample can be approximated by<sup>2/</sup>

$$SD = SD_u \sqrt{1 + (C)(R)}$$

where

$SD_u$  is the standard error which would be present in an unclustered sample of the same size,

C is the number of observation points within each cluster, and

R is the ratio of the variance of the cluster means to the



for this variable divided by the overall sample variance for the variable.<sup>1/</sup> This calculated R was then used, together with estimated values of  $SD_u$  based on equation (1), to calculate the standard deviations for the non-FHA cells in the matrix. Data on a relatively popular program option at a low price were chosen as the basis for the estimation of R, in order to ensure that there would be sufficient variance in the demand estimates across counties to obtain as accurate an estimate of R as possible. On the basis of this data, R was calculated to be .065.

#### B. STANDARD DEVIATIONS IN CLAIMS RATES TABLES

Table A.2 shows claims rates and approximate standard deviations for portions of the claims rates data given in Table F.10 of Appendix F. The standard deviation estimates in this table were derived by using procedures analogous to those outlined in Section A above with regard to the demand tables.

For the non-clustered FHA sample, standard deviations were estimated as<sup>2/</sup>

$$SD = \frac{\sum (X_i - \bar{X})^2}{N - 1} \quad (3)$$

---

<sup>1/</sup> In order to allow adequate sample sizes at the county level, R was estimated with all market segments grouped together.

<sup>2/</sup> See Dixon and Massey, 1969, p. 28.

Market Segment	Alternative HIW Plans				
	S	SM-1	SM-2	SMA	MA
FHA, House < 10 Years Old	.097 (.032)	.194 (.048)	.272 (.057)	.301 (.064)	.437 (.037)
FHA, House 10-29 Years Old	.275 (.023)	.528 (.035)	.645 (.040)	.703 (.043)	.801 (.028)
FHA, House > 29 Years Old	.368 (.040)	.672 (.059)	.818 (.065)	.765 (.063)	.745 (.038)
FHA Total	.282 (.019)	.531 (.028)	.651 (.031)	.676 (.032)	.756 (.020)
Non-FHA, House < 10 Years Old	.044 (.024)	.183 (.047)	.262 (.056)	.297 (.061)	.537 (.050)
Non-FHA, House 10-29 Years Old	.129 (.033)	.338 (.054)	.435 (.066)	.495 (.072)	.701 (.052)
Non-FHA, House > 29 Years Old	.178 (.052)	.337 (.075)	.409 (.079)	.428 (.085)	.602 (.053)
Non-FHA Total	.123 (.022)	.300 (.035)	.384 (.041)	.425 (.044)	.642 (.031)

<sup>a/</sup> Claims rates estimates are taken from Table F.10 of Appendix F, section 12. The claims rates shown in the table include \$50 to \$100

used to correct for the effects of clustering. In making this adjustment, the variable R was estimated as the quotient of the variance of the county means of claims rates for a two-year SMA plan divided by the overall sample variance for this variable. A plan with high claims rates was used in this work in order to maximize the variances on which the estimate of R was based. The calculated R was .136.

### C. STANDARD DEVIATIONS IN CLAIMS COSTS TABLES

Table A.3 shows average claims costs and approximate standard deviations for portions of the claims costs data given in Table F.11, Appendix F. The procedures used to develop the standard deviation estimates for this table were analogous to those described above with respect to claims costs, except that means and variances were computed by using repair incidents as the unit of observation, rather than households. R was estimated on the basis of cost data applicable to a two-year SMA plan. This use of a plan with high claims rates ensured a relatively high number of observation points on which to base the R estimate. The calculated R was .1226. The standard deviation estimates in this third table may somewhat understate true standard deviations because they do not take into account the fact that approximately one-quarter of the eligible problems lacked repair cost information. Costs for these cases had to be estimated on the basis of overall sample means by problem type.

## Alternative HIW Plans

Market Segment	S	SM-1	SM-2	SMA	MA
FHA, House < 10 Years Old	\$628 (95)	\$478 (71)	\$433 (57)	\$532 (80)	\$152 (62)
FHA, House 10-29 Years Old	681 (55)	560 (35)	530 (30)	537 (30)	217 (28)
FHA, House > 29 Years Old	776 (81)	615 (55)	602 (48)	603 (50)	226 (60)
FHA Total	712 (44)	575 (24)	551 (25)	557 (25)	211 (25)
Non-FHA, House < 10 Years Old	571 (123)	340 (49)	342 (42)	416 (69)	142 (40)
Non-FHA, House 10-29 Years Old	854 (157)	557 (78)	537 (66)	550 (62)	176 (51)
Non-FHA, House > 29 Years Old	571 (98)	502 (64)	489 (60)	468 (53)	177 (68)
Non-FHA Total	707 (88)	505 (46)	488 (39)	502 (38)	167 (34)

<sup>a/</sup> Average repair costs are taken from Table F.11 in Appendix F. For option MA, the repair costs shown in the table include \$50 to \$100 problems, but the standard deviation calculations are based only on problems costing \$100 or more. See text of appendix for derivation of standard deviation estimates.



This appendix contains brief descriptions of ten home warranty companies currently operating in the private sector, including the major firms in the industry and all firms approved by the National Association of Realtors (NAR). Each description covers patterns of growth, methods of marketing, the cost of purchasing a contract, plan coverage, provision for inspecting the dwelling, and claims procedures. Table A.1, following the descriptions, summarizes the principal features of each of these plans.

#### A. AMERICAN HOME GUARD

American Home Guard (AHG) offers a one-year warranty on appliance, basic mechanical systems, and basic structural components of the dwelling that pass a quick inspection by the real estate agent. The plan is available through participating real estate agents in ten states.

##### 1. Growth Patterns

American Home Guard signed its first warranty contract in November 1976. In six months of operations they have signed 1800 warranty contracts in nine states (New Jersey, Virginia, Maryland, North Carolina, South Carolina, Tennessee, Georgia, Ohio and Florida). They have signed a contract with North America Brokers Association (NABA) requiring that 75 percent of homes that members of NABA sell must carry the AHG warranty. By the end of the coming year, AHG plans to be selling warranties in

to cover all homes they sell with a warranty contract. A three-year contract is signed with each participating broker. Most purchasers of the warranty are home sellers; five percent of the real estate companies provided it and charge neither the buyer or the seller.

Condominiums are eligible for coverage of components that can be repaired inside the unit. AHG will pay the owner's share, less the deductible, of common elements.

Rental property is not eligible for the warranty.

The warranty cannot be renewed.

### 3. Cost

The price for the warranty is based on the selling price of the home. The charge is \$195 for houses selling for \$20,000 to \$50,000; \$245 for houses selling for \$50,000 to \$100,000; and \$285 for houses selling for more than \$100,000. The period of coverage is one year. There is a deductible charge of \$65 for each appliance repair and \$135 for all other repairs.

### 4. Coverage

(a) Appliances: built-in garbage disposal, dishwasher, surface range, oven and hot-water heater.

(b) Basic mechanical systems: the heating system, including central air conditioning; the interior electrical system; the plumbing system, including interior components of water closets and plumbing fixtures.

(c) Basic structural components: the roof (for structural sound-

before a contract is signed with the seller.

## 6. Claims

Claims are made directly to a central AHG office. The owner obtains repair estimates from two local contractors. The company participates in selecting the contractor to perform the work. There is a maximum coverage of \$6,000 per warranty.

### B. AMERICAN HOME SHIELD

American Home Shield (AHS) offers a one-year warranty on appliances and basic mechanical systems without a prior inspection. The plan is available through participating real estate agents in seven states.

#### 1. Growth Patterns

American Home Shield began its warranty operations under its current name in December 1972. About 180 real estate firms now offer AHS warranties in seven jurisdictions (California, New Jersey, Arizona, Virginia, Maryland, Connecticut, and Washington, D.C.). There are approximately 30,000 contracts outstanding nationwide. By the end of the coming year, AHS expects to have approximately 50,000 contracts in 15 states. The company expects in the long term to offer warranties in 30 states.



to cover all the houses they sell with the AHS Homeowners' Maintenance Plan. If neither the seller nor the buyer agrees to buy the plan, the real estate agent is obligated to purchase it. Realtors can be dropped from the program for failing to obtain coverage for all homes that they sell. Approximately 98 percent of the purchasers of the plan are home sellers; the other 2 percent are mostly home buyers.

Condominiums are eligible for coverage of components that can be repaired inside the unit.

Rental property is eligible for the warranty.

The warranty can be renewed, but renewals are not solicited.

### 3. Cost

The price for the warranty plan is \$220 to \$240 for one year, depending on the available coverage. Some markets include coverage of items such as air conditioners or plumbing fixtures. There is a \$20.00 service charge for each repair in most locations, although the charge in Connecticut is \$50.

### 4. Coverage

- (a) Appliances: built-in garbage disposal, dishwasher, surface range, and oven.
- (b) Basic mechanical systems: the heating system, including the hot-water heater and, in some markets, air conditioning; the interior electrical system and outside receptacles attached to the main structure; the plumbing system, including interior components of water closets and, in

## 5. Inspection

The seller signs a statement claiming that there are no existing defects in those systems covered under the warranty plan before escrow, and that other systems and appliances will be in good working order at the close of escrow. Items which are not working can be excluded from coverage.

## 6. Claims

Claims are made directly to a central AHS office. Repairs performed under the warranty are completed by local contractors under contract with AHS. There is no maximum claim.

## C. AMC HOME PROTECTION PROGRAM

The AMC Home Protection Program (AMC) offers an inspection of applicable basic mechanical systems, and basic structural components of the dwelling accompanied by an optional warranty of up to one year in duration on the mechanical systems and structural components found to be in satisfactory condition. The program is available to home buyers and sellers in five Northeastern states.

## 1. Growth Patterns

AMC began offering its inspection and warranty plan in March 1976. During its first year of operation, approximately 1,200 inspections were performed. Warranty agreements were signed for 5 percent of the inspections.

in the next three to five years.

## 2. Marketing

The AMC plan is marketed directly to buyers and sellers, although the majority of sales come through referrals from real estate agents. Approximately 97 percent of those purchasing inspections are home buyers.

Condominiums are eligible for coverage of components that can be repaired inside the unit.

Investment properties may be inspected but are not eligible for warranty protection.

The warranty can be renewed.

## 3. Cost

The price of the inspection depends on the sales price of the home, varying from \$90 for a house selling for up to \$20,000 to \$135 for a house selling for \$60,000 to \$80,000, and at least \$150 for a house selling for more than \$100,000.

AMC charges \$75 for the optional warranty. The period of coverage is one year, or 18 months minus the time lapse between inspection and sale, whichever period is shorter. There is a \$250 deductible on each claim.

interior components or water closets.

- (c) Basic structural components: the roof (for structural soundness and absence of water penetration); the structure of walls, ceilings and floors; and the foundation and basement for structural soundness.

## 5. Inspection

AMC provides a detailed, two- to three-hour inspection.

Those items failing the inspection are not eligible for warranty coverage. Certain features of the dwelling are inspected even though warranty protection is not extended to them. These additional features include the security system, fireplaces, and existence of termite infestation. A detailed report describing the condition of all inspected systems is provided to the households purchasing the inspection.

## 6. Claims

Claims are made directly to AMC. AMC obtains an estimate of the cost of any repair claimed by the warranty holder. The homeowner arranges for the repair and is reimbursed for the cost of the repair up to the estimated amount. There is a maximum coverage of \$25,000 per claim.

## D. CERTIFIED HOME INSPECTION PROGRAM

The Certified Home Inspection Program (CHIP), provided by Certified Homes Corporation, offers an inspection of appliances, basic

satisfactory condition. The program is available to home buyers and sellers in eighteen jurisdictions. CHIP is approved by the National Association of Realtors.

## 1. Growth Patterns

CHIP's predecessor, the National Home Inspection Service, signed its first inspection warranty contract in 1973. After an initial period of rapid growth, the company went through a period in which pricing and operating policies were reevaluated and sales dropped. This decline was reversed last year after Certified Homes Corporation was reorganized. The present annual growth rate is approximately 20 percent. Approximately 1,500 inspections were performed and 260 warranties issued during the six months since reorganization. CHIP protection is available in seventeen states and in the District of Columbia. The six areas in which CHIP is most active are the District of Columbia, Maryland, New Jersey, New York, Ohio, and Indiana. The company expects most of its growth within the next year to come from the development of existing areas but also expects to add approximately ten new areas.

## 2. Marketing

CHIP attracts buyers through referrals from real estate agents and previous customers and through advertisements in the newspapers. Approximately 50 percent of sales are referred by previous customers;

### 3. Cost

The CHIP inspection fee is based on the selling price of the home, varying from \$65 for homes selling for \$20,000 or less to \$115 for homes selling for \$60,000 to \$80,000 and \$185 for homes selling for \$150,000. The warranty costs an additional \$100. The period of coverage is one year, or 18 months minus the time lapse between inspection and sale, whichever period is shorter. There is a \$100 deductible on each warranty claim.

### 4. Coverage

- (a) Appliances: none.
- (b) Basic mechanical systems: the heating system, including central air conditioning and the hot-water heater; the interior electrical system; the plumbing system, including interior components of water closets and bathroom fixtures.
- (c) Basic structural components: the roof (for structural soundness and absence of water penetration); the structure of walls, ceilings, and floors; the foundation and the basement for structural soundness.

### 5. Inspection

CHIP provides a detailed, two- to three-hour inspection. Additional features of systems not included under the warranty are inspected such as humidifiers and dehumidifiers, septic systems, water softeners,

or unsatisfactory are excluded from coverage. A detailed inspection report describing the condition of all of these systems is provided to the purchaser of the inspection.

## 6. Claims

Claims are made directly to CHIP. Any warranted component of the dwelling requiring repair or replacement is first subject to an inspection by a CHIP representative and/or contractor, who estimates the cost for repair. The homeowner can submit an independent estimate. CHIP selects the estimate it will honor, arranges for the contractor to complete the work, and pays the contractor directly. The homeowner sends CHIP the \$100 deductible. Total maximum coverage is \$25,000.

## E. ELECTRONIC REALTY ASSOCIATES

Electronic Realty Associates (ERA) offers a one-year warranty (Buyers Protection Plan) on appliances and basic mechanical systems that pass a quick inspection by a real estate agent. The plan is available in 40 states through real estate firms that are members of the ERA system.

### 1. Growth Patterns

ERA signed its first warranty contract in September 1973. From 1974 to 1975, the number of contracts grew by 17 percent; from 1975 to 1

expects to double its volume of contracts. ERA managers expect to be operating in all 50 states and overseas within the next five years.

## 2. Marketing

Member realty firms are strongly encouraged to offer the ERA warranty plan to home sellers. If a member firm provides ERA with a selection of homes resulting in a high number of claims, that firm can be barred from offering warranty coverage. Although home buyers purchasing a home through an ERA firm also can buy a contract, fewer than one percent of buyers actually purchase a contract that has not been initiated by the seller. Through a unique ERA provision, the buyer may, however, upgrade the plan supplied by the seller by purchasing a lower service charge (see next section).

Condominiums are eligible for coverage of components that can be repaired inside the unit.

Investment property is not eligible for coverage.

The warranty may not be renewed.

## 3. Cost

ERA has three types of cost plans with service charges of \$100, \$50, or \$25. The costs of these three plans are, respectively, \$180, \$220, and \$260. Contracts for homes selling for more than \$150,000 cost 50 percent more.



counter-top blenders, and central vacuum systems.

- (b) Basic mechanical systems: the heating system, including the hot-water heater and central air conditioning; the interior electrical system and doorbells; and the plumbing system, including interior components of water closets and plumbing fixtures.

The seller is protected against defects in all appliances and systems for up to six months during the listing period.

- (c) Basic structural components: none.

## 5. Inspection

All covered items are inspected by the real estate agent to determine whether or not they are operating, before a contract is signed with the seller. Malfunctioning items can be excluded from the warranty or repaired by the seller. Homes at least 30 years old are inspected by a qualified third party, who primarily determines whether electrical and plumbing systems are in working order.

## 6. Claims

Claims are made directly to a central ERA office. Repairs claimed under the warranty are completed by contractors under contract with ERA. There is no maximum claim.

## F. FIRST AMERICAN HOME PROTECTION INSURANCE

First American Home Protection offers one-year insurance coverage on appliances, basic mechanical systems, and basic structural components of the dwelling which pass an inspection. The plan is available through

First American sold its first policy under its current NAR-approved in April 1977. (The company sold some policies under pilot programs did not have NAR approval in Kansas and Oregon in 1976.) The company s its program in six states: California, Missouri, Oregon, New o, Texas, and Iowa. It is seeking approval through state insurance ssions to sell its policy in 11 more states. First American ually expects to offer the program nationwide, but short-term and term growth projections are not yet available.

### Marketing

Real estate agents refer home sellers to agents of the underwriting ance carriers who write policies on the homes.

Condominiums are eligible for coverage of components that can be red inside the unit.

Insurance is available for units containing up to four dwellings, f which must be owner-occupied.

The policy can not be renewed.

### Cost

The premium cost depends on the selling price of the house. For le, premiums for homes costing \$30,000 are \$217; premiums for homes ng for \$70,000 cost \$293; and premiums for homes with a sales price

\$27.50 fee. There is a \$100 deductible for every claim.

#### 4. Coverage

- (a) Appliances: built-in garbage disposal, dishwasher, surface range, and oven.
- (b) Basic mechanical systems: the heating system, including central air conditioning and the hot-water heater; the interior electrical system; the plumbing system, including interior components of water closets, plumbing fixtures, and the water softener.
- (c) Basic structural components: the roof (for structural soundness and absence of water penetration); the structures of load-bearing walls, ceilings, and floors; and the foundation and basement for structural soundness.

#### 5. Inspections

A one-hour inspection of the home is provided by Underwriters Adjusting Company. Items failing inspection may be repaired and reevaluated or excluded from coverage. An inspection report is available to the purchaser.

#### 6. Claims

Claims are made directly to the underwriting company's designated claims office. Repairs are performed by local contractors approved by the underwriter. The maximum total claim is \$25,000 per policy.

systems and structural components found to be in satisfactory condition. The program is available through real estate agents and directly to buyers and sellers in four states. Homestead is approved by the National Association of Realtors.

### 1. Growth Patterns

The Homestead program began issuing warranties in March 1977 and, to date, has only a few contracts. The program is currently operating in four states: New Jersey, Pennsylvania, Delaware, and Virginia. Homestead expects to have 1,300 warranties in effect after 12 months of operation, and 9,000 in effect nationwide over the next several years.

### 2. Marketing

The company is marketing its program through real estate agents, who describe the program both to buyers and sellers.

Condominiums are eligible for coverage of components that can be repaired inside the unit.

Commercial property is not eligible for coverage.

The warranty may be renewed.

### 3. Cost

The cost of the warranty is based on the selling price of the house. The charge is \$200 for houses selling for up to \$35,000; \$275 for houses

- (a) Appliances: none.
- (b) Basic mechanical systems: the heating system, including the central air conditioning, hot-water heater, and humidifiers; the interior electrical system; the plumbing system, including interior components of the water closet, plumbing fixtures, and laundry tubs.
- (c) Basic structural components: the roof (for structural soundness and absence of water penetration); the structure of walls, ceilings, and floors; the foundation and basement for structural soundness; and attached garages and breezeways.

## 5. Inspection

Components of the dwelling covered by the warranty are inspected during a one- to two-hour inspection. Those items found to be in unsatisfactory condition either can be repaired or excluded from warranty coverage. The inspection report includes photographs of the dwelling and photographs of each major defect. The buyer or seller may decline the warranty protection for a purchase only if the inspection for \$100 to \$125.

## 6. Claims

Claims are made directly to a company representative. The homeowner can select a contractor to perform any repair costing less than \$200. For repairs over \$200, an adjuster is assigned for inspection and repair authorization. Generally, the homeowner is then authorized to select a contractor to complete the repair, but the company reserves the right to

Pacific Cal-West offers a one-year warranty on appliances and basic mechanical systems without a prior inspection. The plan is available through participating real estate agents in the state of California.

## 1. Growth Patterns

The company began selling warranties in November 1973 in northern California. Over the last year it has increased its number of warranty contracts by over 30 percent. Today it has 1000 participating real estate firms throughout California, with about 6,000 contracts in effect. If current growth trends continue, Cal-West anticipates that it will have nearly 20,000 contracts within a year. The firm expects to expand its operations into several additional states.

## 2. Marketing

Real estate firms participating in the Cal-West program execute an agreement with Cal-West, committing them to present the program to all buyers or sellers dealing with the brokerage firm. Each buyer or seller is required to sign a waiver if he or she chooses not to buy a Cal-West warranty, stating that the opportunity to purchase a warranty was offered and refused. Approximately 95 percent of the contracts are purchased by home sellers and 25 percent by home buyers.

Condominiums are covered for all repairs that can be completed inside the unit.

### 3. Cost

The price for the warranty plan is \$210. There is a service charge of \$15 for each repair. If the service is utilized during the listing period, the seller pays a \$20 service fee.

### 4. Coverage

- (a) Appliances: built-in garbage disposal, dishwasher, surface range and oven, and bathroom and kitchen exhaust fans.
- (b) Basic mechanical systems: the heating system, including the hot-water heater; the interior electrical system and outside receptacles attached to the main structure; and the plumbing system, including interior components of water closets.
- (c) Basic structural components: none.

### 5. Inspection

The seller signs a statement claiming that no systems or appliances have any defects, as far as he or she knows. The company reserves the right to inspect any property prior to signing the contract if it is believed that an inspection would reveal existing defects.

### 6. Claims

Claims are made directly to the central Cal-West office. Repairs performed under the warranty are completed by local contractors under contract with Cal-West. There is no maximum claim.

and basic mechanical systems that pass a quick inspection by a real estate agent. The plan is available through participating real estate agents in nine states.

## 1. Growth Patterns

Rollins issued its first warranty in September 1976 but began active marketing activities in January 1977. Presently there are approximately 1,000 policies in effect in 14 metropolitan areas in Illinois, Oklahoma, Wisconsin, West Virginia, Missouri, Maryland, Tennessee, Georgia, and Florida. The company expects to have approximately 4,000 policies in effect within a year and to continue to expand steadily after that.

## 2. Marketing

The warranty is marketed through a real estate agent with an exclusive license to sell the warranty in his or her market area. Contracts are offered to sellers or to buyers if the seller declines. Approximately 90 percent of warranty purchasers are home sellers.

Condominiums are covered for all repairs that can be completed inside the unit.

Only single-family owner-occupied dwellings are eligible for coverage.

The warranty may be renewed from year to year.



particular real estate brokerage firm. The price is established on the basis of an analysis of the average price and age of the homes sold by the firm over a three-year period. The average warranty price is \$230. There is a \$100 cumulative deductible for each contract.

#### 4. Coverage

- (a) Appliances: built-in garbage disposal and dishwasher.
- (b) Basic mechanical systems: the heating system, including central air conditioning and the hot-water heater; the interior electrical system; the plumbing system, including interior components of water closets, plumbing fixtures, and the sump pump.
- (c) Basic structural components: none.

#### 5. Inspection

The real estate agent inventories each house to determine whether all items to be covered are in working order.

#### 6. Claims

Claims are made directly to the central Rollins office. Repairs are performed by local contractors under contract to Rollins.

#### J. SAINT PAUL HOME PROTECTION

Saint Paul Home Protection provides one-year insurance coverage for basic mechanical systems and basic structural components of the dwelling

policies to warrant all homes sold through a particular broker. (This early plan had no deductible or inspection.) Under its present organization Saint Paul has been selling warranty policies since 1976 in Colorado, Ohio and Florida. The company now has several hundred policies. Growth projections are not currently available.

## 2. Marketing

A cooperating real estate agent refers the buyer or the seller of a home to a Saint Paul insurance agent who sells the insurance policy.

Condominiums are eligible for coverage of components that can be repaired inside the unit.

Investment property is not eligible for coverage.

The warranty may be renewed.

## 3. Cost

The price for the warranty protection is based on the selling price and age of the home. A premium for a \$30,000 house of any age is \$100. The premium on a \$70,000 house, three years old or less, is \$140; if it is over nine years old, the premium is \$210. If a house sells for \$150,000, the comparable range of premium values is \$300 to \$450. There is an additional charge of \$18 to \$35 for an inspection on all houses. Appliances can be covered for additional premium costs

each appliance failure.

#### 4. Coverage

- (a) Appliances (optional): built-in garbage disposal, dishwasher, range, and oven.
- (b) Basic mechanical systems: the heating system, including hot-water heaters; the interior electrical system; and the plumbing system, including interior components of the water closets, plumbing fixtures, and central air conditioning. Water softeners are optional.
- (c) Basic structural components: major structural defects that result in collapse, shifting, or moving of all or a portion of the home caused by defective workmanship; faulty design or materials, which results in a crack or opening at least one-half inch wide and one-half inch long extending through the exterior or interior walls above or below ground level; structural supports, roof, and roof-covering materials.

#### 5. Inspection

An inspection lasting 20 to 30 minutes and covering 24 features of the dwelling is performed on the home by inspection companies approved by Saint Paul, which charges the buyer directly. A copy of the inspection report is sent to the insurance company. Items listed as defective on the inspection report must be repaired or excluded from coverage. The inspection report is available to the buyer.

#### 6. Claims

Claims are made directly to Saint Paul. The company provides for any required repair or for the full cost of replacement, minus the deductible. Living expenses up to 30 days or \$750 are provided

coverage for basic mechanical systems and basic structural components of the dwelling which pass an inspection by a trained inspector. The plan is available through real estate agents and directly to buyers and sellers in the state of Georgia. Soundhome is approved by the National Association of Realtors.

### 1. Growth Patterns

Soundhome began selling policies in August 1976 and is now operating in the state of Georgia. In nine months of operation, it has signed 5 insurance contracts and performed 24 inspections. Growth projections are not currently available.

### 2. Marketing

Soundhome policies are marketed through real estate agents who describe the program both to buyers and sellers and complete the forms required to initiate the inspection.

Condominiums are covered for all repairs that can be completed inside the unit.

Investment property can be insured.

The warranty may not be renewed.

### 3. Cost

A two-year insurance policy costs \$200 for homes selling for \$35,000

- (a) Appliances: none.
- (b) Basic mechanical systems: the heating system, including central air conditioning and the hot-water heater; the interior electrical system; the plumbing system, including interior components of water closets.
- (c) Basic structural components: the roof (for structural soundness and absence of water penetration); the structure of walls, ceilings, and floors; and the foundation and basement for structural soundness and water penetration due to structural defects.

## 5. Inspection

All items covered by the policy are inspected during a two-hour inspection by inspectors working for the General Adjustment Bureau (GAB). Those items failing to pass inspection are excluded from insurance coverage unless the owner chooses to have them repaired. After repair, items are reinspected at no additional charge. As an additional service, some items are inspected but are not covered by the insurance policy. These items include walks, patios, appliances, and exhaust fans, dehumidifiers and humidifiers, and space heaters. A detailed inspection report is provided to the seller, the real estate agent, and also the purchaser upon request.

## 6. Claims

Claims are made to GAB. Appraisers determine the value of the claim. The policyholder arranges repairs and is reimbursed accordingly. Maximum coverage is \$150,000 or the selling price of the houses, whichever

## COMPARISON OF WARRANTY PROGRAMS

Home Cost For \$70,000 \$150,000 House House	Deductible Or Service Charge	Coverage <sup>b/</sup>	Period Of Coverage; Renewable <sup>c/</sup>	Inspection Level <sup>d/</sup>	Source Of Repair <sup>e/</sup>	Insurance Or Warranty <sup>f/</sup>	Principal Purchasers
\$245	\$285	BA BMS + central air and plumbing fix- tures BST + roof water penetration	1 yr.; NR	O-R	Owner	Warranty	Sellers
\$220- 240	\$220- 240	BA BMS + central air and/or plumbing fixtures in some locations	1 yr.; R	O-R	SC	Warranty	Sellers
\$210	\$275	BMS + central air BST + roof water penetration	1 yr.; R	D-Ins	Owner	Warranty	Buyers
\$215	\$285	BMS + central air, bathroom fixtures, kitchen sinks BST + roof water penetration	1 yr.; R	D-Ins	Owner	Warranty	Buyers
\$180 220 260	\$270 330 390	BA + slide-ins, countertop blen- ders, central vacuum BMS + plumbing fix- tures, door bells, central air and built-in wall units, water softeners	1 yr.; NR	O-R	SC	Warranty	Sellers
\$293	\$527	BA BMS + central air, plumbing fixtures BST	1 yr.; NR	S-Ins	SC	Insurance	Sellers

Continued)

Premium Cost For				Deductible Or Service Charge	Coverage <sup>b/</sup>	Period Of Coverage <sup>c/</sup> Renewable	Inspection Level <sup>d/</sup>	Source Of Repair <sup>e/</sup>	Insurance Or Warranty <sup>f/</sup>	Pri- or Pur-
House	House	\$150,000	House							
\$30,000	\$70,000	\$100,000	\$150,000							
\$200	\$275	\$425	\$100	BMS + bathroom fix- tures, laundry tubs BST + roof water penetration, attached garages and breeze- ways	2 yr.; R	D-Ins	Owner	Warranty	B	
\$210	\$210	\$210	\$15- 20	BA + bathroom and kitchen fans BMS	1 yr.; R	O-R	SC	Warranty	S	
\$230	\$230	\$230	\$100 (cumula- tive)	BA - range, oven BMS + central air, plumbing fixtures, sump pump	1 yr.; NR	O-R	SC	Warranty	S	
\$100	\$140- 210	\$300- 450	\$25- 50	Optional: BA + central air, water softeners BMS + bathroom fixtures BST	1 yr.; R	S-Ins	SC	Insurance	B	
\$200	\$280	\$430	\$100	BMS + central air BST + water penetra- tion due to struc- tural defects	2 yr.; NR	D-Ins	Owner	Insurance	B	

average price is listed for Rollins Home Care. See the text for an explanation of methods of determining premium cost for mechanical systems (BMS) = built-in garbage disposal, dishwasher, range and oven. Basic mechanical systems (BMS) = central air conditioning, basic structural (BST) = roof, wall, ceiling and floor structure, foundations, basements.

renewable. NR = nonrenewable.

Recent significant developments in the law have provided some increased protection to home buyers against hidden defects in their homes. However, these legal precedents have dealt almost exclusively with the purchase of new homes from builder-contractors, perhaps stimulating the development of the Home Owners Warranty Program (HOW), which is mentioned in Chapter II. To date, the courts have explicitly limited liability for defects to builder-vendors, excluding sellers of previously occupied housing. This appendix outlines this legal history, to place the development of HIW programs in context.

#### A. INROADS AGAINST "CAVEAT EMPTOR"

The doctrine of caveat emptor--let the buyer beware--was the dominant rule with regard to the sale of both real and personal property for centuries. It was based upon the presumptions that the buyer and seller dealt with one another at arm's length, and that the buyer had both the opportunity and means to discover as much information about the subject matter of the sale as was within the knowledge of the seller. Today, however, as far as personal property purchases are concerned, the law recognizes that a purchaser of goods and services in an industrialized society must rely upon the ability and goodwill of the manufacturer or seller to assure that goods and services purchased are of adequate quality. Courts have expanded



recognition by the majority of case law, have now been enacted into statutory law by nearly all states as part of the Uniform Commercial Code (UCC).

#### B. IMPLIED WARRANTIES PROVIDED BY STATUTORY AUTHORITY

No implied warranty exists today by statutory authority for real property, although pending legislation in California moves in this direction (see below). However, in the area of personal property, implied warranty is clearly established. In the UCC, provision for implied warranty is found in Section 2-314, which provides that "[u]nless excluded or modified by agreement, a warranty that the goods be merchantable is implied in a contract for their sale if the seller is a merchant with respect to goods of that kind." The significant concept to be considered closely for our purposes are the words of limitation: "if the seller is a merchant with respect to goods of that kind." Thus, for purchasers of real property, to secure the equivalent protection of an implied warranty which is available to purchasers of personal property through the UCC, the seller would necessarily have to be a builder-contractor or real estate dealer. A real estate dealer involved in the purchase and sale of real property would have a significant opportunity to become aware of the true worth of a particular piece of property than would the average prospective home buyer.

It is significant to note, however, that the UCC in another

the protection afforded by Sections 2-314 and 2-315 of the UCC to purchasers of personal property has not been extended to the area of real property, although to deny such similar protection has no clear basis of justification.

At the time of this writing there is a bill pending before the Senate of the State of California (SB 510) which in essence provides for required disclosure by every real estate licensee to prospective purchasers of single-family homes through a written statement of specific information regarding a particular piece of property. Among the requisite information would be "[a] statement from the seller listing (1) all known substantial defects or malfunctions in the roof or major systems or appliances, or a disclaimer of the presence of known substantial defects or malfunctions, and (2) any warranties or representations the seller is furnishing as part of the consideration of sale as to capital improvements, replacements, or repair of major components or appliances and the approximate dates on which any such improvements, replacements or repairs were completed. The term 'major systems' . . . includes, but is not limited to, the heating, air conditioning, plumbing and electrical systems of the dwelling unit." The protection provided for in the California bill would seemingly place the buyer and seller on more equal terms

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<sup>1/</sup> The limitation provided for in Section 2-316 is that the implied warranty is rendered ineffective under the provisions of Section 2-314 and/or 2-316 where an "as is" clause is included in the contract for sale and pur-

bill provides not that "the buyer beware" but that the buyer be aware.

## C. IMPLIED WARRANTIES AS A CURRENT TREND OF UNITED STATES COURT DECISIONS

### 1. Builder-Vendor Responsibilities (Liability)

The first inroad against the doctrine of caveat emptor in the area of real property occurred in the United States in 1957 in an Ohio decision Vanderschrier v. Aaron.<sup>1/</sup> The principle upon which the recent trend toward implied warranties for dwellings is based came from the English case of Perry v. Sharon Development Company,<sup>2/</sup> which preceded the decision of the Ohio court in Vanderschrier by twenty years. In Perry there is a distinction made between houses completed before purchase and those completed afterwards:

There is obviously a distinction between a contract for sale of a house which is an existing and complete structure and a contract for the sale of an uncompleted house which has to be completed by the vendor. In the former case, quite clearly, there is no implied undertaking by the vendor as to the fitness of the house or its condition. In such circumstances, the maxim caveat emptor clearly applies to the full when the purchaser inspects the house by himself, or by his surveyor, and makes up his mind as to its condition and fitness for occupation. The other type of house, a house only partly erected, or to be completed, is different in two respects. In the first place, the maxim caveat emptor cannot apply, and the buyer, insofar as the house is not yet completed, cannot inspect it either by himself or by his surveyor, and in the second place, from the point of view of the vendor, the contract is not merely a contract to sell, but also a contract to do building work, [therefore] it is only natural and proper that there should be an implied undertaking that the build-

ted after the sale. As in Perry, the doctrine of implied warranty  
tiness was only extended to homes which were incomplete at the time  
e sale, concluding that the arrangement contemplated by the "law between  
sellers and the buyers was the completion of the entire house in such  
y that it would be reasonably fit for its intended use and that the work  
d be done in a reasonably efficient and workmanlike manner."<sup>1/</sup> The  
t went on to reason that there could be no implied warranty of quality  
nstruction in a completed house because there is no further construction  
done, and therefore the liability of the seller ends with the sale.

The distinction set forth in Perry and followed first by a U.S.  
t in Vanderschrier was later discarded in a decision in Colorado --  
Enter v. Donohoe.<sup>2/</sup> There the court said "[t]hat a different  
should apply to the purchaser of a house that is near completion than  
d apply to one who purchases a new home seems incongruous. To say  
the former may rely on an implied warranty and the latter cannot is  
mizing a distinction without a reasonable basis for it."<sup>3/</sup> The  
of action in this decision was based upon actual fraud by the seller,  
at the issue of implied warranty was not squarely before the court.  
er, the court seemed determined in any case to eliminate the distinction  
lished in Vanderschrier by stating:

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<sup>1/</sup>140 N.E. 2d at 821.

the time of contracting. There is an implied warranty that builder-vendors have complied with the building code of the area in which the structure is located. Where, as here, a home is the subject of sale, there are implied warranties that the home was built in workmanlike manner and is suitable for habitation.<sup>1/</sup>

One year following the Colorado decision, the New Jersey Supreme Court, in Schipper v. Levitt & Sons, Inc.,<sup>2/</sup> rejected a builder's defense based upon the doctrine of caveat emptor. In that case the defendant was held liable for personal injuries suffered by the son of a tenant of the purchaser of the home. The child was burned by hot water from a defective faucet. By extending the liability of the builder to the son of a tenant of the purchaser, the New Jersey Supreme Court was saying that at least in the area of personal injury there was no requirement as to privity in real estate transactions. In essence, Schipper opened the door for later cases (see Section 2 below) which allowed recovery by home purchasers whose purchase was made subsequent to the original sale by the builder-contractor. Additionally, the New Jersey Supreme Court made a deeper inroad against the doctrine of caveat emptor by holding that:

the builder's contention that caveat emptor should be applied and the deed viewed as embodying all the rights and responsibilities of the parties disregards the realities of the situation. Caveat emptor developed when the buyer and seller were in an equal bargaining position and they could readily be expected to protect themselves in the deed. Buyers of mass produced development homes are not on an equal footing with the builder-vendors and are no more able to protect

themselves in the deed than are automobile purchasers in a position to protect themselves in the bill of sale.<sup>1/</sup>

The final assault against the doctrine of caveat emptor, as applied to sales by builder-vendors, occurred in the decision Waggoner v. Eastern Development, Inc.<sup>2/</sup> by the Supreme Court of South Dakota. In

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<sup>1/</sup>207 A. 2d at 328.

<sup>2/</sup>83 S.D. 57, 154, N.W. 2d 803 (1967). It is interesting to note that the actions in both Waggoner and Carpenter were originally pursued against defendants as actions based upon fraud. The court, while dismissing actions on the basis of fraud, found an implied warranty to exist.

Actions based upon fraud historically have been the only available remedy making sellers liable to purchasers in actions involving both real and personal property, prior to the existence of implied warranties.

There are several forms of fraudulent misrepresentations which will render sellers liable to purchasers in all jurisdictions. The facts which are allegedly involved in the fraud must be material, relied upon by the purchaser, and ultimately result in harm to him or to her. The principal form of such fraud involves intentional misrepresentation, where the seller makes intentional misstatements of facts which are recognized to be within his knowledge, and which cannot be easily known to the purchaser, and where the purchaser relies and acts upon the misstatements. In these situations, there is a proper cause of action to recover damages.

Innocent misrepresentations may also be actionable where the purchaser is mistaken with regard to the facts. More significantly for our purposes, courts have recently held that concealment of circumstances or facts which the purchaser has no duty to disclose that may not be within the ability of the purchaser to discover may create a duty upon the seller to disclose such material facts. Failure to disclose such information may void the contract.

Courts have also found that there is no duty upon the potential purchaser to use diligence in discovering potential fraud. The burden to discover material facts of which the seller or his agent are aware and of

site itself was prepared for construction, the defendant, Midwestern, entered into an agreement to purchase the land from the owner-developer. When considering whether the defendant knew and should have known of the pond and spring from which water seeped into the basement of the house, the court held that even if the defendant did not know of the existence of the spring, "where a person holds himself out as specially qualified to perform work of a particular character there is an implied warranty that the work shall be done in a reasonable good and workmanlike manner and the completed product or structure shall be reasonably fit for its intended purpose."<sup>1/</sup>

In holding that the defendant, Midwestern, was liable, the court found that there was nothing in the physical appearance of the land that would have alerted a reasonably prudent person to the presence of the potentially damaging water. The court, however, was extremely specific in terms of limiting such extensive liability only to builder-vendors. The court expressly indicated that there would be no implied warranty of reasonable workmanship and habitability in the "resale of used housing since the vendor usually has no greater skill with respect to determining the quality of a house than the purchaser."<sup>2/</sup> At least in the series of cases discussed thus far, therefore, the vision or intent of the doctrine of caveat emptor still persists, in that where the vendor and seller are dealing with one another "at arm's length" or on an equal footing in terms

There is no recovery for damages due to latent defects through the theory of implied warranty.

### Extensions of Implied Warranties

The theory of implied warranty has been extended in cases since Schipper and Waggoner to include liability benefits flowing to subsequent purchasers who were not parties to the original agreement and in terms of length of time such liability under implied warranty remains in effect after the original purchase and sale agreement. In a California decision, Kriegler v. Eichler Homes, Inc.,<sup>1/</sup> a second purchaser of a home sued the builder and recovered damages on the basis of an implied warranty theory. The defendant had constructed 4,000 homes in which steel-tubing radiant heating systems had been installed in the concrete-slab floor. Kriegler's predecessor purchased one of the homes in 1952 and the plaintiff bought the home from the original purchaser in 1957. In 1959, due to the corrosion of the steel tubing, Kriegler suffered damages. The court in Kriegler based the extension of its holding--that the defendant, Eichler, was liable for the damages suffered--upon the New Jersey Supreme Court decision in Schipper. The court stated "that Kriegler [had] relied on the skill of Eichler in producing a home with a heating system that was reasonably fit for its intended purpose."<sup>2/</sup> Recognizing that even a subsequent purchaser may rely on the workmanship of the builder-vendor of homes, the court in Kriegler eliminated the need for



no privity between builder-vendor and homeowner for recovery under the doctrine of implied warranty.<sup>1/</sup> The Kriegler decision has been followed consistently in California,<sup>2/</sup> but a statute of limitations was enacted to limit recovery for latent defects which cause such damage to those which occur within ten years after substantial completion.<sup>3/</sup>

### 3. Summary

At the time of this writing, no decision in a United States court has suggested that recovery under the theory of an implied warranty is available to a plaintiff where such dealings in real estate are strictly between private persons. That is, the original seller must be a builder-vendor or person performing in some similar commercial capacity with respect to real property. The intent of both the Uniform Commercial Code and those cases which provide for recovery under implied warranty, both in personal and real property, seems to be that some party to the transaction

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<sup>1/</sup>In Gay v. Cornall, 494 P. 2d 371 (1972), a Washington court found that the plaintiff, who was the third purchaser but the first purchaser-occ enjoyed the benefit of an implied warranty of fitness. In Gable v. Silver, 258 So. 2d 11 (1972), a Florida court, while not having the issue of privity before it, alluded to the possibility of a future extension of the warranty protection to more remote purchasers.

<sup>2/</sup>See, for example, Avner v. Longridge Estates, 77 Cal. Rptr. 633 Eden v. Van Tine, 132 Cal. Rptr. 743 (1976).

<sup>3/</sup>Section 337.15 of the Code of Civil Procedure of the State of

## Conclusion

In the absence of fraudulent misrepresentations or liability which refer back to the original commercial builder-vendor, the purchaser of a used home has no means by which he can recover losses due to such defects. It seems unlikely that courts will place the burden for the cost of such damages upon the private person who is selling a home. This would have a deadening effect upon the existence of a free-flowing marketplace in which private persons may buy and sell homes to one another.



This appendix presents supplemental tables for the Demand Survey analysis. Tables D.1 to D.10 present active and latent demands for the tested options at three price levels (discussed in Chapter III, Section A) cross-classified by various household and housing characteristics. Tables D.11 to D.16 present details of the preference for HIW program components discussed in Chapter III, Sections B and C. Tables D.17 to D.27 present details of the attitudinal correlates of demand for HIW options discussed in Chapter III, Section D.

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$100	\$75	\$50	\$100	\$75	\$50
Total Sample	7	9	20	6	8	20
<u>Number of Families</u>						
One	6	9	21	6	8	20
Two to four	7	7	12	6	10	17
<u>Age of House</u>						
Less than 10 years	6	6	16	5	9	17
10 - 29 years	7	10	19	6	8	19
30 years or more	7	9	16	8	9	16
<u>House Price Range</u>						
\$21,000 or Less	9	12	26	7	8	26
\$21,000 - 28,000	7	10	21	10	11	21
\$28,000 - 35,000	5	6	14	5	9	16
\$35,000 or More	6	9	22	5	7	20
<u>Annual Family Income</u>						
\$12,000 or Less	6	10	20	6	7	20
\$12,001 - 16,000	5	8	20	7	11	21
\$16,001 - 21,000	9	11	25	6	6	18
\$21,001 or More	7	9	20	6	9	22
<u>Size of Community (Location)</u>						
Medium or large city	7	9	22	5	7	21
Suburb of a city	6	9	18	9	12	24
Small city or town	6	8	20	4	7	18
Rural	12	13	27	7	7	20
<u>Region</u>						
East	10	10	21	8	7	16
South	7	11	25	7	10	21
North Central	6	8	18	5	5	20
West	5	8	16	6	10	22
<u>Sex</u>						

	<u>FHA Sample</u>			<u>Non-FHA Sa</u>	
	\$100	\$75	\$50	\$100	\$75
Total Sample	21	32	49	20	26
<u>Number of Families</u>					
One	22	32	50	20	27
Two to four	15	33	50	23	23
<u>Age of House</u>					
Less than 10 years	20	29	45	20	25
10 - 29 years	22	32	49	19	29
30 years or more	22	34	53	21	26
<u>House Price Range</u>					
\$21,000 or Less	26	39	55	20	29
\$21,000 - 28,000	21	31	49	20	29
\$28,000 - 35,000	18	26	42	21	25
\$35,000 or More	19	32	48	20	26
<u>Annual Family Income</u>					
\$12,000 or Less	20	31	50	17	26
\$12,001 - 16,000	22	33	50	24	26
\$16,001 - 21,000	24	36	51	21	27
\$21,001 or More	19	28	46	20	27
<u>Size of Community (Location)</u>					
Medium or large city	21	32	50	18	26
Suburb of a city	18	26	42	24	32
Small city or town	23	35	54	17	24
Rural	31	44	57	22	27
<u>Region</u>					
East	28	38	54	20	22
South	24	35	54	21	28
North Central	18	29	49	19	27
West	19	29	44	19	29

	\$250	\$175	\$100	\$250	\$175	\$
<u>Total Sample</u>	1	7	18	2	5	
<u>Number of Families</u>						
One	1	7	18	2	5	
Two to four	0	7	15	3	10	
<u>Age of House</u>						
Less than 10 years	0	8	16	3	6	
10 - 29 years	2	7	22	2	5	
30 years or more	2	5	20	3	5	
<u>House Price Range</u>						
\$21,000 or Less	2	8	17	1	4	
\$21,000 - 28,000	2	6	20	3	7	
\$28,000 - 35,000	0	6	15	1	3	
\$35,000 or More	1	8	21	3	6	
<u>Annual Family Income</u>						
\$12,000 or Less	2	6	14	1	5	
\$12,001 - 16,000.	1	6	17	2	3	
\$16,001 - 21,000	1	8	20	2	5	
\$21,001 or More	1	8	24	3	6	
<u>Size of Community (Location)</u>						
Medium or large city	1	6	19	3	5	
Suburb of a city	2	8	17	4	7	
Small city or town	1	8	16	1	4	
Rural	0	4	19	2	5	
<u>Region</u>						
East	3	9	14	2	6	
South	2	9	22	3	5	
North Central	0	6	16	2	6	
West	1	4	15	2	4	
<u>Sex</u>						
Male	1	7	18	2	5	
Female	1	6	18	2	5	

Number of Prior Homes Owned

	<u>FHA-Sample</u>			<u>Non-FHA Sample</u>		
	\$250	\$175	\$100	\$250	\$175	\$100
<u>Total Sample</u>	8	26	50	9	24	45
<u>Number of Families</u>						
One	8	26	50	9	25	47
Two to four	8	37	48	3	17	26
<u>Age of House</u>						
Less than 10 years	8	26	50	10	26	46
10 - 29 years	8	26	51	8	26	49
30 years or more	9	26	46	9	23	41
<u>House Price Range</u>						
\$21,000 or Less	8	23	46	4	19	34
\$21,000 - 28,000	8	26	52	10	27	48
\$28,000 - 35,000	6	23	48	8	23	50
\$35,000 or More	11	34	57	11	27	49
<u>Annual Family Income</u>						
\$12,000 or Less	5	25	51	5	21	43
\$12,001 - 16,000	6	24	48	6	23	41
\$16,001 - 21,000	12	28	53	8	25	50
\$21,001 or More	9	28	48	13	29	49
<u>Size of Community (Location)</u>						
Medium or large city	8	26	49	10	28	42
Suburb of a city	8	25	49	11	29	53
Small city or town	8	27	54	5	19	45
Rural	6	24	42	11	24	44
<u>Region</u>						
East	12	24	38	8	20	41
South	11	27	51	9	23	41
North Central	5	23	51	7	23	43
West	6	26	51	12	32	52
<u>Sex</u>						
Male	9	27	50	8	23	44
Female	7	24	49	9	26	48
<u>Number of Prior Homes Owned</u>						



	<u>FHA Sample</u>			<u>Non-FHA</u>	
	\$375	\$260	\$150	\$375	\$260
<u>Total Sample</u>	1	7	19	2	8
<u>Number of Families</u>					
One	1	7	20	2	8
Two to four	3	8	19	0	6
<u>Age of House</u>					
Less than 10 years	2	6	15	3	10
10 - 29 years	1	7	21	3	7
30 years or more	1	6	17	1	7
<u>House Price Range</u>					
\$21,000 or Less	1	8	19	1	5
\$21,000 - 28,000	1	5	19	1	10
\$28,000 - 35,000	3	8	20	1	6
\$35,000 or More	0	5	21	4	9
<u>Annual Family Income</u>					
\$12,000 or Less	2	6	20	2	6
\$12,001 - 16,000	0	6	17	1	7
\$16,001 - 21,000	1	7	20	2	6
\$21,001 or More	2	8	23	4	9
<u>Size of Community (Location)</u>					
Medium or large city	2	7	20	2	6
Suburb of a city	2	5	19	4	12
Small city or town	0	6	17	2	5
Rural	0	10	22	3	8
<u>Region</u>					
East	0	7	13	1	8
South	2	9	22	3	8
North Central	1	5	16	2	7
West	1	5	15	3	8

Sex

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$375	\$260	\$150	\$375	\$260	\$150
Total Sample	7	28	56	8	29	52
<u>Number of Families</u>						
One	7	29	58	8	29	53
Two to four	15	27	44	0	26	39
<u>Age of House</u>						
Less than 10 years	7	28	57	10	31	54
10 - 29 years	7	29	59	8	29	54
30 years or more	8	28	55	4	28	50
<u>House Price Range</u>						
\$21,000 or Less	7	27	53	6	24	42
\$21,000 - 28,000	5	28	59	6	26	51
\$28,000 - 35,000	9	30	58	9	33	60
\$35,000 or More	6	32	61	9	33	55
<u>Annual Family Income</u>						
\$12,000 or Less	6	28	58	6	25	45
\$12,001 - 16,000	6	26	54	5	27	55
\$16,001 - 21,000	8	31	58	8	32	57
\$21,001 or More	10	30	62	10	33	57
<u>Size of Community (Location)</u>						
Medium or large city	7	28	56	5	27	49
Suburb of a city	6	29	57	11	34	60
Small city or town	8	29	60	5	27	50
Rural	2	23	61	11	28	53
<u>Region</u>						
East	7	33	50	5	28	49
South	7	28	60	10	28	51
North Central	7	26	53	5	26	50
West	6	30	59	8	35	61
<u>Sex</u>						
Male	7	31	56	7	30	52
Female	6	25	56	8	27	52

	FHA Sample			Non-FHA Sample		
	\$350	\$275	\$200	\$350	\$275	\$200
<u>Total Sample</u>	1	5	9	3	6	10
<u>Number of Families</u>						
One	1	5	10	3	6	10
Two to four	0	4	4	0	3	10
<u>Age of House</u>						
Less than 10 years	1	3	8	5	7	12
10 - 29 years	1	6	11	2	5	10
30 years or more	1	5	8	1	5	7
<u>House Price Range</u>						
\$21,000 or Less	1	7	10	2	4	7
\$21,000 - 28,000	1	3	9	2	4	10
\$28,000 - 35,000	1	3	8	1	4	9
\$35,000 or More	1	8	13	4	7	11
<u>Annual Family Income</u>						
\$12,000 or Less	1	4	8	2	2	4
\$12,001 - 16,000	0	2	6	2	5	8
\$16,001 - 21,000	1	4	11	3	4	10
\$21,001 or More	2	9	13	4	9	13
<u>Size of Community (Location)</u>						
Medium or large city	1	3	9	3	5	8
Suburb of a city	2	5	10	3	8	15
Small city or town	0	5	9	1	3	7
Rural	0	10	12	4	9	12
<u>Region</u>						
East	0	7	13	1	5	8
South	1	6	12	4	7	11
North Central	0	5	9	2	4	9
West	1	3	6	2	6	10
<u>Sex</u>						
Male	1	4	8	3	6	9
Female	1	5	10	1	5	10

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$350	\$275	\$200	\$350	\$275	\$200
Total Sample	6	20	28	6	20	27
<u>Number of Families</u>						
One	6	20	28	6	20	27
Two to four	11	19	23	0	13	27
<u>Age of House</u>						
Less than 10 years	5	19	28	8	19	29
10 - 29 years	7	20	28	6	20	29
30 years or more	5	19	28	4	19	23
<u>House Price Range</u>						
\$21,000 or Less	5	22	26	6	16	18
\$21,000 - 28,000	6	18	28	4	21	30
\$28,000 - 35,000	5	19	28	4	15	25
\$35,000 or More	8	21	29	9	23	30
<u>Annual Family Income</u>						
\$12,000 or Less	4	16	26	3	16	22
\$12,001 - 16,000	4	15	24	4	18	25
\$16,001 - 21,000	9	23	30	8	19	31
\$21,001 or More	9	25	35	9	26	32
<u>Size of Community (Location)</u>						
Medium or large city	5	19	25	5	19	27
Suburb of a city	7	20	27	10	27	37
Small city or town	6	19	33	4	17	21
Rural	6	27	31	7	17	28
<u>Region</u>						
East	11	27	36	4	18	24
South	7	22	29	9	21	27
North Central	5	18	26	5	16	27
West	5	17	26	6	23	32

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$250	\$200	\$150	\$250	\$200	\$150
Total Sample	0	2	7	1	2	6
<u>Number of Families</u>						
One	0	2	7	1	2	5
Two to four	0	0	4	3	3	20
<u>Age of House</u>						
Less than 10 years	1	2	5	2	2	5
10 - 29 years	0	2	9	2	2	7
30 years or more	0	1	5	0	2	5
<u>House Price Range</u>						
\$21,000 or Less	0	2	10	1	1	2
\$21,000 - 28,000	0	3	8	2	2	8
\$28,000 - 35,000	0	0	4	1	1	4
\$35,000 or More	1	1	5	1	2	7
<u>Annual Family Income</u>						
\$12,000 or Less	0	1	8	1	1	4
\$12,001 - 16,000	0	1	6	2	2	6
\$16,001 - 21,000	1	3	8	1	2	5
\$21,001 or More	0	1	5	2	2	7
<u>Size of Community (Location)</u>						
Medium or large city	0	2	7	1	1	6
Suburb of a city	0	1	8	2	2	6
Small city or town	0	2	7	2	2	6
Rural	0	4	6	1	2	4
<u>Region</u>						
East	1	5	10	1	3	7
South	0	3	11	2	3	6
North Central	0	0	5	0	1	4
West	0	0	3	0	0	7

Sex

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$250	\$200	\$150	\$250	\$200	\$150
<u>Total Sample</u>	5	12	22	4	10	19
<u>Number of Families</u>						
One	5	12	22	5	10	19
Two to four	7	11	11	3	10	27
<u>Age of House</u>						
Less than 10 years	5	10	21	6	10	19
10 - 29 years	6	14	24	5	12	22
30 years or more	4	10	16	3	8	17
<u>House Price Range</u>						
\$21,000 or Less	6	17	24	3	9	15
\$21,000 - 28,000	5	11	23	5	13	23
\$28,000 - 35,000	4	8	20	5	9	18
\$35,000 or More	4	12	21	5	11	22
<u>Annual Family Income</u>						
\$12,000 or Less	5	13	19	2	10	20
\$12,001 - 16,000	4	11	21	7	11	20
\$16,001 - 21,000	7	14	26	4	8	20
\$21,001 or More	4	11	21	6	12	21
<u>Size of Community (Location)</u>						
Medium or large city	4	12	18	4	9	20
Suburb of a city	5	13	25	4	10	19
Small city or town	6	12	24	5	10	20
Rural	4	13	27	4	11	18
<u>Region</u>						
East	5	16	26	2	7	14
South	8	17	25	6	12	22
North Central	3	10	20	3	8	18
West	2	6	18	5	12	22
<u>Sex</u>						

	FHA Sample		Non-FHA Sample	
	Abs. Cert.	Abs. Cert. or V. Likely	Abs. Cert.	Abs. Ce or V. Lik
Total Sample	13	30	11	26
<u>Number of Families</u>				
One	13	31	11	27
Two to Four	11	22	17	20
<u>Age of House</u>				
Less than 10 years	12	26	12	24
10 - 29 years	14	32	12	29
30 years or more	10	30	10	25
<u>House Price Range</u>				
\$21,000 or Less	15	36	9	22
\$21,000 - 28,000	12	28	10	25
\$28,000 - 35,000	13	27	5	18
\$35,000 or More	9	28	15	32
<u>Annual Family Income</u>				
\$12,000 or Less	13	31	7	20
\$12,001 - 16,000	11	28	9	23
\$16,001 - 21,000	12	30	10	28
\$21,000 or More	14	32	17	32
<u>Size of Community</u>				
<u>(Location)</u>				
Medium or large city	14	29	11	29
Suburb of a city	13	31	16	30
Small city or town	11	29	10	24
Rural	10	38	6	20
<u>Region</u>				
East	7	25	14	26
South	15	34	14	29
North Central	15	33	10	24
West	9	24	7	27

	FHA Sample			Non FHA Sample		
	First Year	Two Years	Three Years	First Year	Two Years	Three Years
<u>Number of Families</u>						
One	16	21	63	22	20	58
Two to Four	19	30	52	15	19	67
<u>Age of House</u>						
Less than 10 years	15	21	65	22	20	59
10 - 29 years	18	18	64	24	19	58
30 years or more	14	27	59	19	23	58
<u>House Price Range</u>						
\$21,000 or Less	12	19	67	20	18	53
\$21,000 - 28,000	17	18	63	21	16	60
\$28,000 - 35,000	16	25	56	16	27	52
\$35,000 or More	18	23	56	24	16	55
<u>Annual Family Income</u>						
\$12,000 or Less	13	25	60	21	22	53
\$12,001 - 16,000	18	15	66	20	17	59
\$16,001 - 21,000	15	21	60	21	22	51
\$21,000 or More	19	24	54	21	17	58
<u>Size of Community</u>						
<u>(Location)</u>						
Medium or large city	17	19	64	24	23	53
Suburb of a city	18	20	62	21	17	62
Small city or town	16	25	60	23	20	58
Rural	6	24	70	19	22	59
<u>Region</u>						
East	5	16	79	17	19	64
South	13	18	69	17	20	63
North Central	25	25	51	23	22	55
West	16	24	60	32	18	50



	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	Main Struc.	Major Equip.	Major Appl.	Main Struc.	Major Equip.	Main Appl.

Number of Families

One	48	49	4	54	41	5
Two to Four	42	53	4	58	42	0

Age of House

Less than 10 years	48	46	6	48	45	6
10 - 29 years	48	49	3	56	41	3
30 years or more	49	50	2	60	37	3

House Price Range

\$21,000 or Less	50	46	3	60	36	3
\$21,000 - 28,000	46	51	3	49	47	3
\$28,000 - 35,000	49	46	3	49	45	6
\$35,000 or More	41	51	6	53	40	5

Annual Family Income

\$12,000 or Less	48	48	3	55	41	2
\$12,001 - 16,000	50	45	2	52	43	4
\$16,001 - 21,000	44	51	5	52	39	7
\$21,000 or More	45	50	5	52	44	3

Size of Community

(Location)

Medium or large city	47	50	2	57	38	4
Suburb of a city	48	47	5	51	45	4
Small city or town	48	49	3	54	40	7
Rural	49	45	6	57	43	1

Region

East	43	55	2	57	39	4
South	53	44	3	55	42	4
North Central	44	53	3	59	37	4
West	44	51	4	47	47	6

Sex

Male	51	44	5	57	40	4
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	\$50 Deduct- ible	\$200 Deduct- ible	\$50 Deduct- ible	\$200 Deduct- ible
<u>Number of Families</u>				
One	76	24	66	34
Two to Four	65	35	67	34
<u>Age of House</u>				
Less than 10 years	75	25	65	35
10 - 29 years	76	24	70	30
30 years or more	76	24	60	40
<u>House Price Range</u>				
\$21,000 or Less	81	13	68	28
\$21,000 - 28,000	76	19	63	30
\$28,000 - 35,000	65	31	64	26
\$35,000 or More	61	34	56	36
<u>Annual Family Income</u>				
\$12,000 or Less	74	18	70	25
\$12,001 - 16,000	73	24	66	28
\$16,001 - 21,000	72	25	61	33
\$21,000 or More	66	28	54	37
<u>Size of Community</u> <u>(Location)</u>				
Medium or large city	76	24	64	36
Suburb of a city	78	22	62	39
Small city or town	72	28	71	29
Rural	74	27	63	37
<u>Region</u>				
East	82	18	68	33
South	80	20	70	30
North Central	80	20	63	37
West	66	34	61	39
<u>Sex</u>				
Male	70	30	62	38
Female	83	17	71	29
<u>Number of Prior Homes</u>				



	FHA Sample		Non FHA Sample	
	Firm Sends Repairman	Arrange by Oneself	Firm Sends Repairman	Arrang Onese
<u>Number of Families</u>				
One	36	65	25	75
Two to Four	22	78	43	57
<u>Age of House</u>				
Less than 10 years	35	65	30	70
10 - 29 years	35	65	24	76
30 years or more	35	65	23	77
<u>House Price Range</u>				
\$21,000 or Less	41	58	20	78
\$21,000 - 28,000	32	66	28	68
\$28,000 - 35,000	32	65	23	70
\$35,000 or More	32	66	28	69
<u>Annual Family Income</u>				
\$12,000 or Less	40	57	23	74
\$12,001 - 16,000	32	66	31	65
\$16,001 - 21,000	31	68	25	73
\$21,000 or More	34	64	23	74
<u>Size of Community</u>				
<u>(Location)</u>				
Medium or large city	34	66	24	77
Suburb of a city	37	63	29	71
Small city or town	34	66	27	72
Rural	40	61	17	83
<u>Region</u>				
East	41	59	22	78
South	33	67	32	68
North Central	35	65	19	81
West	36	64	25	75
<u>Sex</u>				

PROPORTION IN EACH MARKET SEGMENT WITH PRIOR

AWARENESS AND EXPERIENCE WITH WARRANTIES

	FHA Sample			Non-FHA Sample	
	Exp	Aware Only	Total	Exp	Aware Only
<u>Number of Families</u>					
One	5	16	21	4	22
Two to Four	4	22	26	0	8
<u>Age of House</u>					
Less than 10 years	3	20	23	7	25
10 - 29 years	6	16	23	3	19
30 years or more	4	15	19	3	21
<u>House Price Range</u>					
\$21,000 or Less	6	15	21	3	20
\$21,000 - 28,000	4	17	21	4	14
\$28,000 - 35,000	4	18	22	3	16
\$35,000 or More	5	21	26	4	28
<u>Annual Family Income</u>					
\$12,000 or Less	5	13	18	4	15
\$12,001 - 16,000	4	17	21	5	20
\$16,001 - 21,000	6	18	24	2	21
\$21,000 or More	3	21	24	5	28
<u>Size of Community</u> <u>(Location)</u>					
Medium or large city	5	18	23	2	24
Suburb of a city	5	18	23	6	19
Small city or town	5	17	22	4	22
Rural	5	6	11	2	20
<u>Region</u>					
East	3	15	18	4	17
South	5	15	20	6	21

	FHA Sample			Non-FHA Sample		
	\$250	\$200	\$150	\$250	\$200	\$150
<u>Inspection Experience</u>						
None	6	10	20	5	8	20
Aware only	5	8	21	6	7	19
Experienced	14	20	30	11	14	25
<u>Warranty Experience</u>						
None	7	11	22	7	9	21
Aware only	5	7	18	4	6	19
Experienced	0	2	14	0	6	14
<u>Inspection Report vs. Warranty Protection</u>						
Inspection Report only	3	4	8	4	5	12
Inspection Report, also Warranty	9	13	24	7	12	27
Warranty, also Inspection Report	8	14	25	6	9	22
Warranty Protection only	5	7	24	6	8	20
<u>Preferred Scope of Warranty Coverage</u>						
Main structure	8	10	24	7	9	21
Major equipment	5	10	19	6	9	22
Major appliance	7	7	10	5	8	13
<u>Number of Problems Since Purchase</u>						
None	4	7	16	4	6	17
One or Two	9	14	26	9	10	25
Three or More	13	18	35	14	17	32
<u>Likelihood of Hiring Inspection Firm at \$80-120</u>						
Absolutely Certain	14	17	37	15	21	38
Very Likely	12	20	31	8	11	30

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$350	\$275	\$200	\$350	\$275	\$200
<u>Inspection Experience</u>						
None	21	32	49	18	26	44
Aware only	19	31	51	19	24	44
Experienced	27	39	61	27	33	44
<u>Warranty Experience</u>						
None	23	33	52	21	28	44
Aware only	16	29	46	16	26	44
Experienced	12	21	35	6	8	33
<u>Inspection Report vs. Warranty</u>						
<u>Protection</u>						
Inspection Report only	12	20	29	15	18	33
Inspection Report, also Warranty	23	35	57	23	30	55
Warranty, also Inspection Report	25	35	53	22	30	55
Warranty Protection only	23	35	54	18	29	44
<u>Preferred Scope of Warranty</u>						
<u>Coverage</u>						
Main structure	24	35	53	21	28	44
Major equipment	19	30	49	20	26	44
Major appliance	16	23	42	8	13	33
<u>Number of Problems Since</u>						
<u>Purchase</u>						
None	18	27	45	17	23	44
One or Two	25	34	59	24	31	55
Three or More	30	45	61	26	37	55
<u>Likelihood of Hiring Inspection</u>						
<u>Firm at \$80-120</u>						
Absolutely Certain	33	39	60	30	38	55
Very Likely	34	47	63	30	40	55

	FHA Sample			Non-FHA Sample		
	\$250	\$200	\$150	\$250	\$200	\$150
<u>Inspection Experience</u>						
None	1	6	17	2	5	17
Aware only	1	6	16	2	4	14
Experienced	4	16	30	5	8	26
<u>Warranty Experience</u>						
None	1	7	8	3	6	19
Aware only	1	5	16	2	4	13
Experienced	0	5	21	0	3	20
<u>Inspection Report vs. Warranty Protection</u>						
Inspection Report only	0	1	8	1	3	9
Inspection Report, also Warranty	1	8	20	4	8	27
Warranty, also Inspection Report	3	10	21	3	5	18
Warranty Protection only	1	7	20	2	4	14
<u>Preferred Scope of Warranty Coverage</u>						
Main structure	2	9	21	3	6	18
Major equipment	1	5	15	2	4	19
Major appliance	3	6	13	3	3	8
<u>Number of Problems Since Purchase</u>						
None	1	5	14	1	4	14
One or Two	3	7	23	2	5	21
Three or More	1	16	25	6	12	29
<u>Likelihood of Hiring Inspection Firm at \$80-120</u>						
Absolutely Certain	6	24	41	9	20	37
Very Likely	1	7	24	2	4	27



	FHA Sample			Non-FHA Sample		
	\$250	\$200	\$150	\$250	\$200	\$150
<u>Inspection Experience</u>						
None	7	25	49	7	25	44
Aware only	7	23	50	7	19	46
Experienced	17	36	58	16	34	53
<u>Warranty Experience</u>						
None	8	25	51	9	26	48
Aware only	6	24	48	7	20	40
Experienced	12	30	47	11	19	47
<u>Inspection Report vs. Warranty</u>						
<u>Protection</u>						
Inspection Report only	5	13	33	6	13	33
Inspection Report, also Warranty	8	31	60	10	35	55
Warranty, also Inspection Report	9	31	55	10	26	50
Warranty Protection only	9	24	48	9	21	47
<u>Preferred Scope of Warranty</u>						
<u>Coverage</u>						
Main structure	10	29	54	7	24	46
Major equipment	6	24	49	11	28	49
Major appliance	3	13	32	5	8	23
<u>Number of Problems Since</u>						
<u>Purchase</u>						
None	6	22	45	6	21	42
One or Two	9	28	57	12	29	54
Three or More	14	39	64	18	33	54
<u>Likelihood of Hiring Inspection</u>						
<u>Firm at \$80-120</u>						
Absolutely Certain	25	46	69	25	42	58
Very Likely	12	24	55	12	16	51

	FHA Sample			Non-FHA Sample		
	\$350	\$275	\$200	\$350	\$275	\$200
<u>Inspection Experience</u>						
None	1	6	19	2	6	18
Aware only	2	7	18	3	7	16
Experienced	1	9	20	5	15	31
<u>Warranty Experience</u>						
None	1	7	19	3	8	21
Aware only	2	5	15	2	7	14
Experienced	0	12	24	0	6	17
<u>Inspection Report vs. Warranty Protection</u>						
Inspection Report only	1	3	10	2	4	13
Inspection Report, also Warranty	1	8	21	4	11	24
Warranty, also Inspection Report	3	8	23	2	6	20
Warranty Protection only	1	6	21	1	8	20
<u>Preferred Scope of Warranty Coverage</u>						
Main structure	2	9	22	2	9	17
Major equipment	1	5	17	3	8	24
Major appliance	3	3	10	3	3	10
<u>Number of Problems Since Purchase</u>						
None	1	5	14	2	6	17
One or Two	1	8	28	2	9	18
Three or More	3	13	28	5	17	29
<u>Likelihood of Hiring Inspection Firm at \$80-120</u>						
Absolutely Certain	4	20	36	9	29	39

	FHA Sample			Non-FHA Sample		
	\$250	\$175	\$100	\$250	\$175	\$100
<u>Inspection Experience</u>						
None	7	27	57	7	29	51
Aware only	7	29	60	7	26	55
Experienced	9	40	69	11	35	66
<u>Warranty Experience</u>						
None	6	27	58	8	30	57
Aware only	8	29	55	6	26	47
Experienced	9	40	69	6	25	44
<u>Inspection Report vs. Warranty</u>						
<u>Protection</u>						
Inspection Report only	5	16	38	4	24	41
Inspection Report, also Warranty	8	35	66	9	34	60
Warranty, also Inspection Report	8	32	66	10	36	62
Warranty Protection only	6	25	59	7	24	55
<u>Preferred Scope of Warranty</u>						
<u>Coverage</u>						
Main structure	9	32	60	8	28	55
Major equipment	5	26	59	8	32	58
Major appliance	7	16	49	3	10	34
<u>Number of Problems Since</u>						
<u>Purchase</u>						
None	5	25	54	5	25	50
One or Two	9	32	66	8	30	62
Three or More	13	37	68	17	41	61
<u>Likelihood of Hiring Inspection</u>						
<u>Firm at \$80-120</u>						
Absolutely Certain	17	44	69	23	48	69
Very Likely	9	42	73	9	43	72

	FHA Sample			Non-FHA Sample		
	\$250	\$175	\$100	\$250	\$175	\$100
<u>Inspection Experience</u>						
None	1	5	9	2	5	9
Aware only	2	6	10	2	5	10
Experienced	1	7	16	5	12	16
<u>Warranty Experience</u>						
None	1	5	9	3	6	11
Aware only	2	7	11	3	4	8
Experienced	0	2	9	0	11	11
<u>Inspection Report vs. Warranty</u>						
<u>Protection</u>						
Inspection Report only	1	3	4	2	4	5
Inspection Report, also Warranty	0	6	11	3	9	15
Warranty, also Inspection Report	2	7	14	4	6	9
Warranty Protection only	1	5	9	2	6	10
<u>Preferred Scope of Warranty</u>						
<u>Coverage</u>						
Main structure	1	6	11	3	7	12
Major equipment	1	4	8	2	5	9
Major appliance	0	10	10	5	5	5
<u>Number of Problems Since</u>						
<u>Purchase</u>						
None	1	4	7	2	4	7
One or Two	1	8	15	5	8	14
Three or More	1	6	15	4	12	18
<u>Likelihood of Hiring Inspection</u>						
<u>Firm at \$80-120</u>						
Absolutely Certain	3	17	31	11	23	35
	1	3	10	2	6	12

	FHA Sample			Non-FHA Sample		
	\$100	\$ 75	\$ 50	\$100	\$ 75	\$ 50
<u>Inspection Experience</u>						
None	5	18	29	5	18	29
Aware only	6	21	33	5	17	25
Experienced	14	30	43	11	28	42
<u>Warranty Experience</u>						
None	6	19	31	6	20	30
Aware only	7	18	30	5	15	24
Experienced	7	28	37	3	36	44
<u>Inspection Report vs. Warranty</u>						
<u>Protection</u>						
Inspection Report only	3	13	21	4	13	22
Inspection Report, also Warranty	4	22	35	8	28	38
Warranty, also Inspection Report	11	24	38	7	21	35
Warranty Protection only	6	18	30	6	16	28
<u>Preferred Scope of Warranty</u>						
<u>Coverage</u>						
Main structure	7	21	35	6	21	31
Major equipment	6	17	28	6	19	31
Major appliance	3	32	32	5	13	13
<u>Number of Problems Since</u>						
<u>Purchase</u>						
None	4	16	28	3	15	23
One or Two	8	23	34	9	23	41
Three or More	11	28	40	15	35	44
<u>Likelihood of Hiring Inspection</u>						
<u>Firm at \$80-120</u>						
Absolutely Certain	20	40	49	24	47	57
Very Likely	8	29	43	7	27	48

OPTION MA AT THREE PRICE LEVELS

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$250	\$200	\$150	\$250	\$200	\$150
<u>Inspection Experience</u>						
None	0	2	7	1	2	7
Aware only	0	1	5	0	1	2
Experienced	1	3	12	3	4	8
<u>Warranty Experience</u>						
None	0	2	7	2	2	6
Aware only	0	2	7	1	1	4
Experienced	0	0	7	0	3	14
<u>Inspection Report vs. Warranty</u>						
<u>Protection</u>						
Inspection Report only	0	0	2	1	1	4
Inspection Report, also Warranty	0	2	9	2	3	8
Warranty, also Inspection Report	1	4	9	2	3	7
Warranty Protection only	0	1	8	1	1	6
<u>Preferred Scope of Warranty</u>						
<u>Coverage</u>						
Main structure	0	3	7	1	1	5
Major equipment	0	1	7	2	3	8
Major appliance	0	0	7	0	0	3
<u>Number of Problems Since</u>						
<u>Purchase</u>						
None	0	1	3	1	1	3
One or Two	10	2	13	3	4	11
Three or More	1	2	13	3	3	9
<u>Likelihood of Hiring Inspection</u>						
<u>Firm at \$80-120</u>						
Absolutely Certain	2	5	16	5	6	12
	0	2	12	2	2	9

OPTION MA AT THREE PRICE LEVELS

	<u>FHA Sample</u>			<u>Non-FHA Sample</u>		
	\$250	\$200	\$150	\$250	\$200	\$150
<u>Inspection Experience</u>						
None	5	12	24	5	11	22
Aware only	4	8	17	3	5	14
Experienced	9	21	35	7	14	26
<u>Warranty Experience</u>						
None	5	12	23	4	9	21
Aware only	5	12	20	5	11	17
Experienced	2	16	33	8	19	28
<u>Inspection Report vs. Warranty</u>						
<u>Protection</u>						
Inspection Report only	2	6	10	5	8	14
Inspection Report, also Warranty	5	13	25	4	11	22
Warranty, also Inspection Report	5	15	28	5	11	22
Warranty Protection only	7	14	28	5	10	26
<u>Preferred Scope of Warranty</u>						
<u>Coverage</u>						
Main structure	5	11	21	4	8	17
Major equipment	5	13	25	5	13	25
Major appliance	7	16	29	8	8	23
<u>Number of Problems Since</u>						
<u>Purchase</u>						
None	3	8	18	2	7	15
One or Two	8	17	33	8	15	28
Three or More	8	21	30	9	18	33
<u>Likelihood of Hiring Inspection</u>						
<u>Firm at \$80-120</u>						
Absolutely Certain	12	25	35	13	19	31

The basic Needs Survey data for computing the repair cost for  
 ble problems were taken from either total repair costs (e.g., Q.36),  
 the problem was repaired, or from the lowest estimated cost of repair  
 ned by the respondent (e.g., Q.32 or Q.33), if the repair had not  
 made. The final repair costs used in the analysis, however, were  
 red from the basic data by means of several adjustments (discussed  
 y). If a problem was not repaired and no estimate was obtained, or  
 the basic cost data were missing for any other reason, an alternative  
 edure, described below, was used to estimate a repair cost.

#### ADJUSTMENTS TO THE BASIC COST DATA

##### Remodeling or Upgrading

Respondents were asked whether the cost or estimated cost of the  
 r included any charges for remodeling or additional repair work done  
 the same time as the specific repair. If respondents answered "yes,"  
 reported total cost was reduced to the fraction of the total cost  
 the respondent thought applied only to the repair of the problem.  
 percent of the 1240 problems eligible under a cursory inspection  
 ved this type of adjustment.

##### Voluntary Labor



estimate such savings and the unadjusted repair cost was used.

### 3. Inflation Adjustment

A variable measuring repair costs in constant dollars was derived by dividing the adjusted cost by a monthly repair cost index. The index was based upon data from two sources: an index of wholesale prices for construction materials, and an index of hourly earnings for contract construction--taken respectively from Table 27 and from Table 17 of various issues of the Monthly Labor Review.<sup>1/</sup>

It will be convenient to develop some additional notation as a basis for describing in detail how these data were used. Let the variable  $t$  be a month indicator, where  $t$  for July 1974 is equal to 1; for August 1974,  $t$  is equal to 2; and so on. Let  $M(t)$  and  $E(t)$  be the monthly values of the material prices and earnings indices cited above. Both  $M(t)$  and  $E(t)$  were normalized to a base period of November 1976 (the 29th month) by creating two new indices,  $M(t)^*$  and  $E(t)^*$ , defined as:

$$M(t)^* = M(t)/M(29)$$

$$E(t)^* = E(t)/E(29)$$

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<sup>1/</sup>U.S. Department of Labor, Bureau of Labor Statistics, Monthly Labor Review, Sept. 1975, Vol. 98, no. 9; Sept. 1976, Vol. 99, no. 9; March 1977, Vol. 100, no. 3--Washington, D.C.: U.S. Government Printing Office.

the value of the weighting factor,  $P$ , represents the relative importance of materials and the labor in completing the average home repair.<sup>1/</sup>

The value of the repair cost index,  $RC(t)$ , ranges from 0.89 in January 1975 to 1.02 in April 1977.

The repair cost index as outlined above was constructed by estimating values of the  $M(t)$  and  $E(t)$  indices for March and April 1977 because the relevant statistics were not available at the time the index was constructed. This was done by assuming that the percentage rise in each index over these recent months would be the same as it was for the same months during the previous year.

#### MISSING DATA ADJUSTMENTS

Cost information was missing completely for 322 of the 1240 problems defined as eligible for the analysis.<sup>2/</sup> Most of these cases reflect situations in which the homeowner had neither repaired the problem nor obtained an estimate of the repair cost. However, some cases where the respondent could not remember or did not know the actual cost also fall in this category.

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<sup>1/</sup> This value was assumed to be .67 on the basis of data on the distribution of on-site construction costs for single-family dwellings presented in Housing and Economics, edited by Michael A. Stegman. Cambridge, Mass.:

maximize the precision of the estimate.

The quality of this procedure for replacing missing data was checked by employing a second approach which attempted to compute an estimate of the repair cost by utilizing the actual problem description supplied by the respondent. An experienced private contractor/inspector, Mr. G. DeWitt Boice, was retained by MPR to provide cost estimates for problems with missing cost data. In cases where estimates provided by Mr. Boice were in excess of \$400, a second set of estimates were obtained from another experienced housing inspector, Mr. J.G. McNeil, PE. In cases where the two estimates differed, the average of the estimates was used.

A sample comparison of the two procedures for replacing missing data was made which compared approximately 40 random problems for which no cost data were provided by the respondents. The mean of the estimates using the expert inspectors was \$553. The average of the estimates for the same problem using the mean repair costs by problem type was \$560. Based on this small difference, the use of mean repair cost by problem category appears reasonable.

The cost estimates must be interpreted carefully for several reasons, the most obvious of which is the small sample upon which these estimates are based. The FHA and non-FHA samples had 763 and 477 eligible problems, respectively. The analyses of costs by problem type or market

totally replaced items such as leaky roofs or old appliances rather than repairing the specific part which caused the problem. To the homeowner, such replacements were rational and necessary, but the replacement also involved a substantial proportion of costs which under an HIW program would be disallowed as normal maintenance or improvement expenditures. An ongoing HIW program which required some type of claims validation process to limit costs only to necessary repairs would result in generally lower average claims. The estimates used in this analysis should be interpreted as a worst-case set of claims costs.

Tables E.1 to E.3 present supplementary information on average costs by various market segments.

Age of House	Problem Type				
	Main Structure	Mechanical Systems	Appliances	Other	Total
FHA					
under 10	\$636	\$281	\$308	\$705	\$486
10-29	670	400	311	640	507
30 or more	751	425	343	530	584
All houses	699	401	315	619	530
Non-FHA					
under 10	580	255	294	642	399
10-29	783	396	299	681	526
30 or more	562	416	269	344	456
All houses	669	372	293	588	481

House Price	Problem Type				Total
	Main Structure	Mechanical Systems	Appliances	Other	
FHA					
\$21,000 or less	\$103	\$398	\$316	\$638	\$555
\$21,001 - \$28,000	726	434	368	490	558
\$28,001 - \$35,000	666	396	311	562	495
over \$35,000	702	375	291	768	526
Non-FHA					
\$21,000 or less	620	429	321	518	538
\$21,001 - \$28,000	506	437	310	536	466
\$28,001 - \$35,000	910	317	317	736	516
over \$35,000	671	382	285	623	477

# AVERAGE REPAIR COSTS OF PROBLEMS COSTING \$100 OR MORE,

## BY TOTAL FAMILY INCOME AND PROBLEM TYPE

Total Family Income	Problem Type				
	Main Structure	Mechanical Systems	Appliances	Other	Tot
FHA					
\$12,000 or less	\$641	\$442	\$289	\$728	\$52
\$12,001 - \$16,000	759	368	298	511	52
\$16,001 - \$21,000	698	397	360	546	53
over \$21,000	668	424	275	709	53
Non-FHA					
\$12,000 or less	643	372	260	465	51
\$12,001 - \$16,000	655	362	316	589	46
\$16,001 - \$21,000	755	418	302	576	51
over \$21,000	668	360	265	617	45

This appendix presents details of the procedures which were used in analyzing the feasibility of alternative HIW Program Options as reported in Chapter V. Section A outlines the mathematical model on which the feasibility simulations were based. Section B then describes the manner in which total numbers of FHA and non-FHA home buyers were estimated and the manner in which these totals were divided into market segments. Procedures used to estimate HIW participation rates for each market segment are also discussed in this section. Section C presents claims rates and average repair cost data by market segments. Finally, Section D presents details concerning the assumptions which were made about administrative costs.

#### A. ANALYTICAL FRAMEWORK FOR DETERMINING PROGRAM FEASIBILITY

As noted in Chapter V of the report, there is a simultaneous relationship between program participation and program costs. Since this relationship is important in analyzing HIW program feasibility, it was necessary to define a set of variables and relationships with which to describe alternative HIW programs. This model is described below.

The Needs Survey data were used to estimate, for various program options, a series of valid claims rates which could be expected for different types of home repairs and for various market segments defined by household characteristics or by dwelling unit characteristics such as



Data from the Demand Survey were used to estimate the proportions of all eligible households which would choose to participate in various HIW programs under various premium levels. For any given program option, the participation rate for a particular household category was denoted as  $G_j$ , and the information from the Demand Survey relating participation rates and premium levels was summarized by using the notation

$$G_j = f_{1j}(P), \quad (1)$$

where  $P$  denotes the premium level for the program, and the symbol  $f_{1j}$  represents the relationship between the premium level and the demand for a particular option.

The total number of households that would participate in any given program option depends not only on the participation rate,  $G_j$ , defined above, but also on the total number of eligible households in the population. In particular, for any given program option, the total number of households in category  $j$  who participate in the program is the participation rate,  $G_j$ , times the total number of households of type  $j$ ,  $N_j$ :

$$H_j = G_j \times N_j. \quad (2)$$

all household types:

$$TCC = \sum_j (H_j \times V_j \times C_j) \quad (1)$$

Finally, information from the review of existing programs provided data about various categories of administration costs, such as home inspection costs, claims processing costs, etc. As administrative costs for the  $k$ th cost category were denoted as  $A_k$ , this relationship between administrative costs and the total number of program participants was written as:

$$A_k = f_{2k} \left( \sum_j H_j \right). \quad (2)$$

An expression for total administrative costs, TAC, was obtained by summing such costs over all cost categories:

$$TAC = \sum_k A_k. \quad (3)$$

Given these relationships, total program costs, TC, were expressed as the sum of total administrative costs plus total claims costs:

$$TC = TAC + TCC. \quad (4)$$

The total premium revenues generated by a program option were expressed as the product of the per household premium level,  $P$ , times the total

Finally, for a program option to be economically feasible without subsidization, it was necessary that total premium revenues generated by the program be set equal to total costs:

$$TR = TC$$

(8)

These eight equations provided an overall framework of simultaneous relationships which summarized the essential features of a given HIW option. Estimates of the values of the  $V_j$ ,  $C_j$ , and  $N_j$ , and for the functional relationships  $f_{1j}$  and  $f_{2k}$ , were generated from the Needs and Demand Surveys and from the review of existing programs. Given a set of values for these parameters, the system was solved to determine program breakeven values for the cost and participation rate variables--the  $A_k$ ,  $G_j$ ,  $H_j$ ,  $TR$ ,  $TC$ , and  $P$ .

The model described above was solved by using an iterative computer simulation technique. For any given program option, the first step in the solution process was to make an assumption concerning the lowest conceivable feasible price for that program option. By using the equations presented above, participation rates, claims rates, claims costs, and total premium revenues were then estimated on the basis of this assumption, and these values, in turn, were used to estimate administrative costs. After this information was printed out, the program

then possible to identify the set of premium levels for which total revenues were at least equal to total costs. This solution could then be interpreted as an estimate of the minimum feasible cost for that program option. A listing of the Fortran programs used to implement the above calculations is included as Appendix H.

## B. DEMAND-RELATED ASSUMPTIONS

The model described above was implemented by first estimating for 1978 (the base year of the analysis) the total number of households in each of six market segments.<sup>1/</sup> After this was done, the next step was to estimate participation rates for each market segment. Sections 1-4 discuss the way in which total numbers of households by market segment were calculated. Section 5 then describes the procedures used to calculate participation rates.

### 1. Annual Volume of Home Resale Market

Data on the overall annual volume of existing home transactions are available in a publication of the National Association of Realtors (NAR), Existing Home Sales. The series is published monthly and is based on single-family home sale data reported by 140 Multiple Listing Services. The multiple listing data are converted to a measure of

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<sup>1/</sup>As discussed in the main report, market segments were defined

overall market size by "using a constant factor to blow up the reported sales of participating multiple listing services."<sup>1/</sup> This constant factor is derived by utilizing special runs of the 1973 and 1974 HUD Annual Housing Survey Tapes.<sup>2/</sup> Comparison of the derived NAR data with HUD's Annual Housing Survey Data suggested that the NAR sales volume data series is within 2 percent of "true" overall market size.

The existing home sales series of the NAR for the years from 1969 to 1976 is shown in Table F.1.

TABLE F.1  
EXISTING HOME SALES VOLUME  
(millions)

---

1969	1.594
1970	1.612
1971	2.018
1972	2.252
1973	2.334
1974	2.272
1975	2.452
1976	3.002

---

Source: National Association of Realtors, Existing Home Sales, p.2.

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<sup>1/</sup> National Association of Realtors, Existing Home Sales, Washington, D.C., December 1976.

and the sales price data they collect. The dollar volume data are shown in Table F.2.

TABLE F.2

DOLLAR VOLUME OF EXISTING SINGLE-FAMILY HOME SALES  
(billions of dollars)

---

1969	37.8
1970	41.4
1971	56.5
1972	67.8
1973	76.8
1974	81.3
1975	95.6
1976	126.7

---

Source: National Association of Realtors, Existing Home Sales, p.4.

2. Financing of Resale Market by Mortgage Type

For the purposes of this study, it was necessary to disaggregate the resale market by type of mortgage financing. This involved estimating the number of existing home sales which utilized (1) FHA financing, (2) VA financing, (3) conventional financing, and (4) purchases made without a mortgage loan.

This disaggregation was done in the following manner: first, data

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	Units	Amount (billions of dollars)
1969	307,412	4.369
1970	244,653	3.695
1971	273,362	4.504
1972	172,091	2.896
1973	106,341	1.737
1974	128,653	2.395
1975	190,284	4.299
1976	198,215	4.682

---

Source: HUD Statistical Yearbook, 1975, Table 17, p. 118, and telephone conversation with FHA office in Washington, D.C.

TABLE F.4

VA PRIMARY HOME LOANS ON EXISTING PROPERTIES  
(units)

---

1969	145,000
1970	112,000
1971	213,000
1972	256,000
1973	220,000
1974	235,000
1975	227,000
1976	257,794

of Commerce, Bureau of the Census) that 13 percent of existing home sales are not financed by a mortgage loan, it was possible to determine the number of conventionally financed purchases. The identity below shows this relationship:

$$\begin{aligned} \text{Total Sales} &= \text{Nonfinanced Sales} + \text{FHA Financed Sales} \\ &\quad + \text{VA Financed Sales} + \text{Conventionally Financed Sales.} \end{aligned}$$

This identity was used to determine the number of sales by type of financing. Tables F.5 and F.6 present these numbers in detail.

TABLE F.5  
EXISTING HOME SALES BY TYPE OF FINANCING  
(number of units)

	Total Sales	Nonfinanced	FHA Financed	VA Financed	Conventionally Financed
969	1,594,000	207,000	307,412	145,000	935,000
970	1,612,000	209,000	244,653	112,000	1,046,000
971	2,018,000	262,000	273,362	213,000	1,270,000
972	2,252,000	292,000	172,091	256,000	1,532,000
973	2,334,000	303,000	106,341	220,000	1,705,000
974	2,272,000	295,000	128,653	235,000	1,613,000
975	2,452,000	318,000	190,284	227,000	1,717,000



	Nonfinanced	FHA Financed	VA Financed	Conve Fi
	%	%	%	
1969	13	19.3	9.1	
1970	13	15.2	6.9	
1971	13	13.5	10.6	
1972	13	7.6	11.4	
1973	13	4.6	9.4	
1974	13	5.7	10.3	
1975	13	7.8	9.3	
1976	13	6.6	8.6	

### 3. Forecast of Resale Volume by Type of Mortgage Loan

The potential demand for a homeowner's warranty in 1977-1979 was determined by forecasting the disaggregate levels of sales activity. The forecast was taken from The Long-Run Housing and Mortgage Market Forecasting System of Dwight Jaffee and Kenneth Rosen, presently on the Interact Corporation computers.<sup>1/</sup>

The model was used to estimate both the total volume of expected home sales and also the share of home sales in the FHA-VA sector. The estimation work was based on two econometric equations which used the

<sup>1/</sup>The model and forecast are described in "The Long-Run Housing and Mortgage Market Forecasting System," Dwight Jaffee and Kenneth Rosen, Interact Corporation, 1977.

and federal subsidy program parameters. Since the equations in the model were stated in terms of dollar volume, the estimates of the model were converted into number of homes by using median sales prices of FHA and non-FHA homes.

The forecasts for the 1977-1978 period were of course predicted upon a set of economic assumptions. The key assumptions were that the inflation rate would average between 5.5 percent and 6.0 percent; that real disposable income per capita would rise at 3.5 percent per year; and that long-term and short-term interest rates would rise between 75 and 175 basis points, respectively. This led to the following tabular forecast:

TABLE F.7

FORECASTS OF EXISTING HOME SALES BY TYPE OF FINANCING  
(number of units)

	Total Sales	FHA-VA Financed
1977	3,467,000	476,000
1978	3,578,000	510,000

The final step in predicting FHA volume in 1978 was to disaggregate the FHA-VA forecast into a separate estimate for the FHA sector. This was done on the basis of the percentage of all FHA-VA loans which were in

	Total Sales	FHA Sales	Non-FHA Sales
1977	3,467,000	206,000	3,261,000
1978	3,578,000	221,000	3,357,000

#### 4. Distribution of Sales Totals Among Market Segments

The sales totals shown in Table F.8 were divided into age-of-house categories on the basis of the percentages of houses in these categories in the Demand Survey. Since this survey was designed to be self-weighting within the FHA and the non-FHA markets, these percentages provide a reasonable approximation of the actual mix of homes within these markets. The Demand Survey was chosen in preference to the Needs Survey as the basis for these estimates, on the grounds that the data were approximately two years more recent and, hence, were more reflective of current conditions.

One additional adjustment of the sales totals by market segment estimates was necessary in simulating programs which would be mandatory for the FHA sector. If an HIW program were made mandatory for the FHA sector of the market, significant numbers of households might leave the FHA sector of the market and enter the non-FHA sector. Table F.9, which is based on the Demand Survey data, provides estimates of the frequency of the households making this change by each market segment within the FHA sector.<sup>1/</sup> In the estimation of the total numbers of homes sold in

relevant question on the survey instrument was asked with regard to only one type of HIW plan--one resembling the SM-1 option--the switching correction which was made must be regarded as only an approximation of reality, particularly with regard to other types of coverage.

TABLE F.9

PERCENTAGE OF FHA HOUSEHOLDS DROPPING FHA FINANCING  
UNDER A MANDATORY HIW PROGRAM

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Age of House	Percentage of Households Switching Out of FHA Sector
< 10 years old	17%
10 - 29 years old	14%
> 29 years old	9%

---

---

Question 22b that a mandatory HIW program would cause them not to seek an FHA loan, and if they responded to Q.34 that they did in fact have non-FHA alternatives. It should be noted that the estimated switching rates in the table may be underestimates of the decrease in FHA volume which would actually occur under a mandatory HIW plan. The reason for this is that they do not reflect possible resistance to such a provision from the other parties involved in real estate transactions--sellers, lenders, and real estate agents.

buy various HIW programs at alternative prices. For each of the  
ve types of HIW coverage included in the survey, the Demand Survey  
tained information on these values for three different prices. The  
tegrated analysis was performed by developing a way of extrapolating  
is demand relationship information to other prices which were not  
rectly included in the survey. Essentially this involved fitting a  
mand curve through the three points about which survey information  
s available. These demand curves were constructed on the basis of  
near extrapolation of the known points on the curves. In particular,  
r any given price, the demand curve corresponding to that price  
s assumed to be the straight line passing through the two known  
ints on the curve closest to the price in question.

#### CLAIMS RATES AND REPAIR COST DATA

As described in more detail in Chapter V, claims rates and repair  
sts were estimated from data obtained in the Needs Survey, broken down  
market segment. Tables F.10 and F.11 were used directly for the  
mulations of the MA options. For all other options, which involve  
re than a cursory inspection, the data in Table F.10 were presumed to  
upper bounds on the true applicable claims rates. Therefore, use was  
de of averages of the data in those tables and the data in Tables F.12  
d F.13, which are based on more restrictive assumptions about problem

TABLE F.10

## POTENTIAL CLAIMS RATES UNDER ALTERNATIVE HIW PROGRAMS, BY AGE OF HOUSE

(Cursory Inspection)

Age of House (years)	HIW Programs							
	One-Year Coverage				Two-Year Coverage			
	S	SM	SMA	MA	S	SM	SMA	M
Less than 10 years	.097	.194	.301	.437	.116	.272	.408	.6
10 - 29 years	.275	.528	.703	.801	.311	.645	.860	1.2
30 years or more	.368	.672	.765	.745	.445	.818	.947	1.3
All houses	.282	.531	.676	.756	.327	.651	.833	.9
-FHA								
Less than 10 years	.044	.183	.297	.537	.070	.262	.411	.7
10 - 29 years	.129	.338	.495	.701	.157	.435	.612	.9
30 years or more	.178	.337	.428	.602	.205	.409	.511	.9
All houses	.123	.300	.425	.642	.150	.384	.531	.8

Note: This table provides a more detailed breakdown of the data presented in Table IV.13. See Chapter IV for further details of how the tabulations were performed.

Age of House (years)	HIW Programs						
	One-Year Coverage				Two-Year Coverage		
	S	SM	SMA	MA	S	SM	SMA
FHA							
Less than 10 years	\$628	\$478	\$532	\$152	\$636	\$433	\$48
10 - 29 years	681	560	537	217	670	530	50
30 years or more	776	615	603	226	751	602	58
All houses	712	575	557	211	530	551	53
Non-FHA							
Less than 10 years	\$571	\$340	\$416	\$142	\$585	\$342	\$39
10 - 29 years	859	557	550	176	783	535	52
30 years or more	571	502	468	177	562	489	45
All houses	707	505	502	167	668	488	48

Note: This table shows the average costs associated with the repair incidents tabulated in Table F.10.

Age of House (years)	HIW Programs					
	One-Year Coverage			Two-Year Coverage		
	S	SM	SMA	S	SM	SMA
Less than 10 years	.087	.165	.233	.107	.194	.282
- 29 years	.199	.318	.394	.229	.392	.490
30 years or more	.259	.425	.482	.303	.522	.595
All houses	.202	.333	.404	.234	.406	.496
MA						
Less than 10 years	.039	.131	.205	.057	.188	.284
- 29 years	.067	.152	.234	.085	.196	.289
30 years or more	.106	.167	.204	.125	.212	.250
All houses	.071	.154	.225	.089	.199	.276

Note: Separate restricted claims rates were not computed for MA coverage because no information was available on the age of the components involved in \$50 to \$100 problems.

Note: This table provides a more detailed breakdown of the data presented in rows 1 and 4 of Table IV.14. See Chapter IV for further details of how the tabulations were performed.



Age of House (years)	HIW Programs					
	One-Year Coverage			Two-Year Coverage		
	S	SM	SMA	S	SM	SMA
FHA						
Less than 10 years	\$609	\$501	\$583	\$621	\$502	\$571
10 - 29 years	655	537	518	642	520	497
30 years or more	831	705	678	815	688	661
All houses	695	592	573	684	578	555
Non-FHA						
Less than 10 years	\$572	\$380	\$406	\$610	\$372	\$400
10 - 29 years	767	499	512	681	482	489
30 years or more	438	396	398	447	421	419
All houses	618	436	453	592	436	447

Note: Separate restricted claims rates were not computed for MA coverage because no information was available on the age of the components involved in \$50 to \$100 problems.

Note: This table shows the average costs of the repair incidents tabulated in Table F.12.

the feasibility analysis. Assumptions regarding each of these types of costs are outlined below and are summarized in Table F.14. It should be noted that the administrative cost estimates which were developed apply only to ongoing HIW programs. Since the objective of the analysis was to analyze the long-run characteristics of such programs, no attempt was made to estimate initial start-up costs.

#### 1. Enrollment

Enrollment costs were defined to include the clerical time required to process application forms, as well as the time and supplies needed to set up the necessary files. Expenses involved in collecting premium payments were also included.

It was assumed in the analysis that for the non-FHA segment of the market, these costs would be approximately \$9.40 per warranty. This figure was based on the following assumptions: (1) on the average, approximately two hours of clerical time per warranty would be required for these functions; (2) salaries plus fringe benefits for clerical workers at approximately GS level 4 would be \$5 per hour; (3) the costs of office space, supplies, and equipment would be approximately \$1.25 per hour of personnel time. The time estimates were based on the current experiences of warranty firms, while the dollar cost estimates were based on current government salary scale and cost estimates.<sup>1/</sup>

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## FOR INTEGRATED ANALYSIS

	HIW Plan Type				
	S	SM1	SM2	SMA	
ollment costs per warranty					
Non-FHA sector	\$ 9.40	\$ 9.40	\$ 9.40	\$ 9.40	\$
FHA sector with voluntary participaton <u>a/</u>	4.70	4.70	4.70	4.70	
FHA sector with mandatory participation <u>a/</u>	0	0	0	0	
esale inspection costs per warranty					
Non-FHA sector	41.60	60.00	60.00	66.10	3
FHA sector <u>a/</u>	12.20	30.60	30.60	36.70	
aims processing and validation costs per claim	95.00	95.00	95.00	95.00	2
ntrol office staffing cost					
If program limited to FHA sector	105,000	105,000	105,000	105,000	1
If program includes both sectors	174,000	174,000	174,000	174,000	1

Includes only marginal costs in addition to those already incurred in FHA program.

sector. In program simulations where the HIW program was mandatory for FHA homes, HIW sales costs in this sector were assumed to be zero, since all FHA homes would be included in the program, and, therefore, it would not be necessary to set up separate files indicating HIW participation. The basis for the assumption of zero marginal cost in this case was that existing FHA files could be used to determine claims eligibility just as they are currently used for this purpose in the context of the Section 518 program. In program simulations where FHA sector participation was voluntary, some additional forms processing and filing would be required, and a cost of \$4.70--half of that assumed for the non-FHA sector--was therefore assumed.

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Office Space:	\$1,400 per staff year
Equipment:	\$ 700 per staff year
Supplies:	\$ 150 per staff year

Since 1,800 hours constitute a staff year, the cost of office space, equipment, and supplies is \$1.25 per hour. Office space cost takes into account space for files, conference rooms, and other program needs, and includes maintenance costs. Equipment and supplies costs are also comprehensive; i.e. they reflect all materials used by program staff.

It was not possible to obtain an estimate of the administrative time needed to supervise the clerical personnel involved in the enrollment process; therefore, such costs were not included in the cost estimate given in the text. This is also true with regard to administrative time associated with the inspection function. Since both of these functions are composed largely of routine processes, this supervisory time would be relatively small, and its inclusion would not significantly alter the results of the feasibility analysis.

also with regard to whether the home is in the FHA or non-FHA segment of the market.

As the basis for estimates of inspection costs, an assumption was made about the costs of inspection under the SM-1 coverage option in the non-FHA sector of the market. Inspection cost estimates for other programs were then determined as variations from these SM-1 option costs. This approach was chosen since the SM-1 option most closely resembles coverage that is now available from existing private inspection HIW firms and is therefore the option about which the most cost information was available.

The cost of performing an inspection including professional time, travel, supplies, and processing of the inspection report was estimated to be \$60.00 for the SM-1 option (and the SM-2 option) in the non-FHA segment of the market. This figure, based on the costs experienced by private HIW firms currently performing such inspections, includes time spent actually performing the inspection plus time and costs associated with such related activities as report preparation, travel, and arranging inspection schedules.<sup>1/</sup> For coverage Option S, which unlike SM-1 does

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<sup>1/</sup> It should be noted that this assumed cost of an inspection performed by the government is lower than the market price of similar inspection now available on the private market. The reason for this is that unlike the price charged by private firms, the assumed cost figure does not include

ed inspection report, it was assumed that a reduction of one  
e-half hours of the inspector's time would be possible. If a  
and fringe benefit cost of \$11 per hour (based on a GS 11 salary  
and another \$1.25 per hour of personnel time for office and supply  
are assumed,<sup>1/</sup> a non-FHA inspection cost for the S program of  
is implied. Similarly, in moving from an SM-1 option to an SMA  
, an additional one-half hour of the inspector's time was assumed  
necessary. By using the cost assumptions discussed above, this  
d a total inspection cost for this option of \$66.10.

Determining inspection costs for the MA option raised additional  
. For the most part, existing private HIW firms offering this kind  
erage do not require a formal inspection of the house as a precondition  
for the coverage. However, as discussed in Chapter II, there is, in  
, at least an informal inspection by the realtors who sell these  
es, to make sure that components included in this coverage are in  
g order at the time of the sale. In the development of cost esti-  
for the MA option as a government program, therefore, the assumptions  
ade that at least a cursory inspection would be done, and that it  
take one-half hour less time than that for the S coverage option.

Inspection costs in the FHA sector depend on the degree to which  
V inspection can be combined with the current FHA appraisal process.

of the current FHA appraisal process. This is true in part because most FHA appraisers do not now have the training in building systems necessary to perform detailed inspections of the type done by private HIW inspection firms. Furthermore, while an examination of the overall condition of the house is part of the current FHA appraisal procedures, these procedures do not now involve a detailed inspection of individual house components. HIW costs for the FHA sector were estimated, therefore, by assuming at a minimum that additional training of FHA personnel would be necessary, and that the HIW inspection, while done during the same visit to the home, would be a totally separate process from the current appraisal activities. An alternative possible assumption would have been that the HIW inspection would have to be done by totally different FHA personnel, and, hence, that HIW inspection costs in the FHA sector would be comparable to those in the non-FHA sector. After consideration of these alternatives, the assumption was made in the feasibility analysis that the inspections could, in fact, be done by FHA personnel doing appraisals, but that the time these staff members would have to spend per home would be increased. In particular, it was assumed that for coverage Options S, SM-1, SM-2, SMA, and MA, there would be increases in the FHA inspection staff time per home of one, two and one-half, two and one-half, three, and one-half hours, respectively. These increases in inspection time reflected estimates of increases in time spent at the homes, in preparing inspection

\$36.70, and \$6.10 for the five programs.

### 3. Claims Processing Costs

The third category of administrative costs considered was that of expenses associated with processing warranty claims. This included the clerical time associated with processing the claims, the cost of validation inspections if they were included in the program, the cost of arranging reimbursement for repair expenses, and the time involved in resolving disputed claims. The simulations assumed that claims under plans S, SM-1, SM-2, and SMA would be processed by using procedures similar to those now used in the FHA Section 518 program and in private inspection HIW firms. These administrative procedures were assumed to cost approximately \$95 per claim in an HIW program. This estimate was based principally on the experience of the Section 518 program, with adjustments where appropriate to reflect differences between that program and an HIW program. The procedures used in making these estimates are discussed in detail in Appendix G. The \$95 estimate is within the range of claims processing cost estimates provided by private inspection HIW firms.

Claims processing costs would, in all likelihood, be considerably lower under an MA coverage option patterned after the programs of existing private firms with this type of coverage. As discussed in Chapter II,



the time and expense needed to process and validate claims are greatly reduced. In the simulation of the claims costs under this option, it was assumed that on the average, two and one-half hours of clerical time and one-half hour of administrative time at GS level 13 would be needed per claim to process claims, to arrange for repairs, and to resolve claims disputes. (The administrative time would be spent principally on the latter function.) These time estimates are based on the current experience of private HIW firms offering MA-type coverage. If approximately \$15 per hour of salary and fringe benefit costs for the senior personnel engaged in this process is assumed, and if the same clerical cost and supply cost estimates cited earlier are used, these time estimates suggest administrative costs for the MA option of approximately \$23.70 per claim.

The discussion above has focused upon administrative costs per claim received, whether or not the claim was valid. These per-claim cost estimates were applied to the valid claims rates which were estimated in the feasibility analysis on the basis of the Needs Survey data by adjusting the valid claims estimates to reflect total claims. The way in which this adjustment was made can be described by using the following notation: Let VC be the number of valid claims received per warranty, and let TC be the total number of valid claims received per warranty, including both valid and invalid ones. Then if Z is defined as the fraction of all claims which were valid,

above. For the S, SM-1, SM-2, and SMA programs, it was assumed that 60 percent of all claims received would be valid. This figure was based on the current experience of HIW firms which perform detailed inspections. For MA-type programs, which have different coverage and which process claims somewhat differently, current market experience suggested a somewhat higher valid claims rate--80 percent.

#### 4. Costs for Central-Office Staffing

In addition to the operating costs at the area and regional office levels discussed so far, there would also be central administrative costs associated with monitoring an HIW program and correcting problems as they developed. In the simulation of programs limited to the FHA sector of the market, it was assumed that the central administrative activities for programs of such magnitude would require three full-time senior level personnel with an average GS rating of approximately 13, together with one and one-half full-time clerical support staff members.<sup>1/</sup> On the basis of the same cost figures as those used earlier, these staffing estimates implied an expected annual cost for staff, supplies, and related expenses of approximately \$105,000.

It should be emphasized that the \$105,000 central staffing cost estimate does not include the supervisory costs associated with actually running the program at the regional and area office levels. It should

staffing cost estimate which was made. In a mandatory FHA-sector with approximately 191,000 participants, for instance, increasing assumed central staffing requirements by a factor of 5 would still be less than \$3 to the breakeven program price.<sup>1/</sup>

The central staffing cost estimate developed above was based on a program limited to the FHA segment of the market. An HIW program also included the non-FHA part of the housing market would be broader and more complex and would therefore require more central-office staff. Conversations with FHA officials concerning the management requirements for a program which included the non-FHA sector suggested the need for additional senior staff members and one additional clerical support person beyond those required for an FHA-only program. These estimates result in a total national office cost for these programs of approximately

An estimate of the administrative cost per claim of the Section 518 (b) (d) program is the basis for assumptions made in the body of the report regarding the claims processing costs of an inspection-type HIW program. This section describes the derivation of that estimate and assesses its suitability as a proxy for HIW processing costs.

#### A. ESTIMATION PROCEDURE

An estimate of the average administrative cost of the 518 program takes into account only those costs which are directly related to program operation. These are the costs associated with staff, office space and equipment, supplies, and transportation. Indirect costs such as personnel staff and other department support services are not included.

The estimate is based on data obtained from the FHA central office and on supplementary information gathered at four area offices.<sup>1/</sup> Three sets of data were obtained centrally: (1) 518 claims-volume and staff-hours data for area and regional offices during fiscal years 1975-77; (2) estimated staff time per claim of the Diversified Payments Division; and (3) staff and other cost information used for FHA budgetary purposes. The cost information is expressed per staff year (1,800 staff hours).

Originally it was thought that the central office data alone might be sufficient to make the average administrative cost estimate. However,

on transportation, and information useful for assessing 518 administrative costs as a proxy for HIW costs.

### 1. Staff cost

Personnel costs, which are the most important determinant of average administrative cost, may be expressed as simply staff hours per 518 claim multiplied by total staff cost per hour. Average staff hours per claim is simply total claims divided by total staff hours. Staff cost per hour is an average of clerical, technician, and management staff cost, weighted by the proportion of time each staff level spends processing the average claim. Information collected at the four area offices has permitted a relatively precise estimate of each of these components of staff cost.

Table G.1 presents the 518 claims and staff hours data for FY 75-77 received from the central office. As indicated, staff hours were not recorded during FY 1975, when a large volume of 518 claims were initially filed. Since most of the administrative work entailed by these claims was actually performed during FY 1976, it is difficult to derive staff hours per claim for the entire FY 1975-77 period. If FY 1975 claims are excluded from this calculation because the corresponding staff hours were not recorded, the resulting figure (12.2 hours per claim) is clearly too high; if those claims are included, however, the figure (8.1 hours) is too low.

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<sup>1/</sup> The four area offices visited have handled relatively large 518

TABLE G.1

SECTION 518 CLAIMS AND STAFF HOURS,  
FISCAL YEARS 1975-77

	518 (b) (d) Claims Filed	Total Staff Hours
FY 1975	26,681	N/A
FY 1976	47,073	515,240
Transition Quarter	73	65,122
FY 1977 (1st Quarter)	5,596	64,477
	<u>79,423</u>	<u>644,839</u>

	<u>Staff Hours Area Offices</u>	<u>Staff Hours Regional Offices</u>	<u>Total Staff Hours</u>
FY 1975	506,434	8,806	515,240
Transition Quarter	60,629	4,493	65,122
	<u>567,063</u>	<u>13,299</u>	<u>580,362</u>

SOURCE: George Thompson, Goals Management Division, HUD.

of the FY 1975-77 period.

The FY 1975-77 claims volume actually processed in FY 1976-77, C\*, can be expressed as:

$$C = TC - (C_x + C_y)$$

where TC is total claims received during FY 1975-77;  $C_x$  is that part of TC which should be excluded because of work completed during FY 1975; and  $C_y$  is that part of TC which should be excluded because of work which remained to be done.

The first adjustment,  $C_x$ , is computed by defining

$$C_x = C \left( \frac{w^*}{w} \right) \quad (1)$$

where C is claims received during FY 1975; w is the workload associated with those claims; and  $w^*$  is the portion of that workload actually performed during FY 1975. The problem, therefore, is reduced to estimating

$$\frac{w^*}{w}.$$

The three major administrative functions which make up the 518 workload are eligibility determination, validation, and processing; completion of these functions results in three dispositions, respectively: eligible/ineligible, valid/invalid, and claims closed. Thus,  $\frac{w^*}{w}$  may be defined in terms of completing these three functions for the claims

$$\frac{W^*}{W} = \left[ \frac{C_e + .5(C - C_e)}{C} \right] A_e + \left[ \frac{C_v + .5(C_{e^*} - C_v)}{\left(\frac{C_{e^*}}{C_e}\right)C} \right] A_v + \left[ \frac{C_p + .5(C_{v^*} - C_p)}{\left(\frac{C_{e^*}}{C_e}\right)\left(\frac{C_{v^*}}{C_v}\right)C} \right] A_p \quad (2)$$

where  $C_e$ ,  $C_v$ , and  $C_p$  are the respective numbers of eligibility determination, validation, and processing determinations, and closed claims during FY 1975;  $C_{e^*}$  and  $C_{v^*}$  are the numbers of claims found to be eligible and valid, respectively, during FY 1975; and  $A_e$ ,  $A_v$ , and  $A_p$  are the percentages of workload attributable to the eligibility, validation, and processing functions.

The derivation of this equation is straightforward. In the bracketed fractions, the numerators represent the workload completed for each function during FY 1975 as it has been defined above. The denominators correspond to the total workload associated with each function. Note that for eligibility, this total workload is all claims, i.e., all initial claims must be reviewed for eligibility. For validation, however, the total workload corresponds to only those claims which are found to be eligible; and for processing, only those claims which are both eligible and valid. Finally, the coefficients  $A_e$ ,  $A_v$ , and  $A_p$  weight these individual workload estimates according to the



$$+ \frac{e}{C_{e*}} \frac{v}{C_{v*}} [C_r + .5(C_{v*} - C_r)] A_r . \quad (3)$$

All of the claims disposition data needed for this computation come from and are provided in Table G.2.<sup>1/</sup> The values of  $A_e$ ,  $A_v$ , and  $A_p$  have been determined from the functional breakdown of staff hours (see Table G.4) discussed later in this appendix. The resulting value of  $C_x$  is 7,858, or 29 percent of FY 1975 claims.

There is a second correction to be made. Some of the claims received during FY 1975-77 are still "in the mill"; i.e., administrative work remains to be done before these claims reach a final disposition. The correction for this remaining claims workload resembles the one made above in equation (3). It is

$$C_y = C'(.5A_e + A_v + A_r) + C'_{e*} (.5A_v + A_r) + C'_{v*} (.5A_r) \quad (4)$$

---

<sup>1/</sup>Since data are unavailable for  $C_e$  and  $C_v$ , their values must be estimated as  $C_{e*}$  and  $C_{v*}$ .

FISCAL YEARS 1975-77

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	FY 1975	FY 1976	Transition Quarter	FY 1977 (1st Quarter)
No. of Claims Received	26,681	47,073	73	5,596
No. of Eligible Determined	8,772	37,947	144	3,028
No. of Valids Determined	407	11,760	1,381	759
Claims Closed	8	6,518	2,588	1,437
No. of Reconsiderations	N/A	11,454	544	678

Source: George Thompson, Goals Management Division.

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	<u>End of 1st Quarter, FY 1977</u>
Unclassified Claims on Hand	313
Eligible Claims on Hand	3,502
Valid Claims on Hand	2,975

Source: 518 Activity Status Report, unpublished HUD memorandum, 1/27/77

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A. Eligibles Determined, FY 1975-77:	48,980
B. Ineligibles Determined, FY 1975-77:	32,521
C. $A \div (A+B)$ :	60%
D. Valids Determined, FY 1975-77:	14,385
E. Invalids determined, FY 1975-77:	39,824
F. $D \div (D+E)$ :	26.5%
G. Claims Closed, FY 1975-77:	10,984
H. $G \div (D)$ :	76.4%

Source: 518 Activity Status Report, unpublished HUD memorandum, 1/27/77

is eligible claims on hand; and  $C'_{v*}$  is valid claims on hand.<sup>1/</sup> The  
 es of these variables are again to be found in Table G.2. The value  
 $C_y$  is 2,911 claims.

---

<sup>1/</sup>Note that the last two terms in parentheses are multiplied  
 $C'_{e*}$  and  $C'_{v*}$  rather than  $C'_e$  and  $C'_v$  (in the manner of equation (3)).  

$$\frac{C'_e}{C'_{e*}} \quad \frac{C'_v}{C'_{v*}}$$

is has the effect of reducing the resultant  $C_y$ . The reasons for this  
 re that (1)  $C'$  and  $C'$  cannot be estimated well for on-hand claims, and

Compensation cost per hour can be estimated by (1) breaking down staff hours by staff category (clerical, technical, management); (2) assigning an average GS grade to each category; and (3) determining the weighted average cost per hour. The area office survey provided values for the first two of these requirements. The breakdown by staff category was found to be 25 percent clerical, 65 percent technical, and 10 percent management. These figures were calculated as the staff hours to category at the four area offices, divided by total staff hours at these offices.<sup>1/</sup> Average grades were reported by the area offices as GS 4, 11, and 14, respectively. Using current salaries for these grades, marked up for fringe benefits,<sup>2/</sup> yields a weighted average compensation cost of \$10.35 per hour. Thus, the cost associated with area and regional office staff time is \$10.35 x 9.39 = \$97.19 per claim.

To this figure must be added the cost of central-office payment voucher processing. The Diversified Payments Division has provided the

---

<sup>1/</sup> Area office data for the first quarter of FY 1977 were used. It should be noted that regional office staff hours were not taken into account. However, these represent only 2 percent of total staff hours at area and regional offices. (Source: George Thompson, Goals Management Division.)

<sup>2/</sup> Salaries for three grades were each calculated at Step 3 levels. The mark-up for fringe benefits is 9.2 percent. (Source: Gene Buehler,

## 2. Nonstaff costs

The other direct program costs are those associated with office space, equipment, supplies, and staff transportation. The FHA uses estimates of the first three of these costs for budgeting purposes. These estimates<sup>2/</sup> are:

Office Space:	\$1,400 per staff year
Equipment:	\$ 700 per staff year
Supplies:	\$ 150 per staff year

Since 1,800 hours constitute a staff year, the cost of office space, equipment and supplies is \$1.25 per hour, or  $\$1.25 \times 9.41 = \$11.76$  per claim.

Staff transportation expense figures were gathered from the four area offices in the form of vehicle-use reimbursement payments. Because these reflect appraiser field work, which is not limited to 518 claims validation, average cost per appraisal visit (rather than per claim) must be

---

<sup>1/</sup> The Diversified Payments Division of the Office of Finance and Accounting provided the data on which these estimates are based. It was reported that 11 Voucher Examiners (average grade of GS 6, Step 5) process 1,320 claims per day, and 5 Data Entry Equipment Operators (GS 4, Step 5) process 1,500 claims per day. Additional staff time (corresponding to the above processing volume) is expended by an Accounting Clerk (GS 5, Step 5), Supervisory Voucher Examiner (GS 8, Step 5), and Supervisory Accounting Clerk (GS 6, Step 5). As for area and regional staff hours, compensation cost includes a fringe-benefit mark-up.

<sup>2/</sup> These estimates were provided by Mr. Buehler of the Budget Divi-

is estimated as  $\$4(.6 + .17 + .01) = \$3.12$ .<sup>2/</sup> This brings the total non-staff cost to \$15.01 per claim.

### 3. Total Administrative Cost Per Claim

The total administrative cost per claim is simply the sum of staff and nonstaff costs per claim: \$112.16. Table G.3 records the component costs of this total cost estimate.

Two comments on this estimate are necessary. First, as mentioned at the outset, certain indirect costs have not been included. These include personnel office and other support to program staff, top management review and program evaluation by the central office, and certain incidental costs. In addition, the 518 program has incurred premium compensation costs for overtime and temporary labor, due to short-term increases in claims volume and office understaffing, which also have not been included.

---

<sup>1/</sup> Average miles driven per appraisal visit was found to be something more than 25 miles, compensated at 15 1/2 cents per mile. Use of appraisal data is appropriate since the relevant cost is transportation to the home, irrespective of the purpose of the visit.

<sup>2/</sup> As indicated in Table G.2, 60 percent of initial claims are determined eligible. Approximately 17 percent of initial claims result in reconsiderations. (Source: 518 Activity Status Report, 1/27/77.) Finally, 12 percent of initial claims have resulted in payments (ibid.), and a 10 percent review of repairs is mandated for these.

1. Area and Regional Office Staff Compensation Cost	\$ 97.19	
2. Diversified Payments Division Staff Compensation Cost	<u>.09</u>	
Subtotal: STAFF COMPENSATION COST		\$97.2
3. Office Space Cost	\$ 7.32	
4. Equipment Cost	3.66	
5. Supplies Cost	.78	
6. Transportation Cost	<u>3.12</u>	
Subtotal: NONSTAFF COST		<u>\$14.8</u>
TOTAL ADMINISTRATIVE COST		\$112.

increased volume, there is an important exception. Large short-term increases in claims volume appear to result in risers in average cost, due to staff reallocation (or relocation) costs, overtime premiums, and the like. Indeed, the Chicago Area Office had to process approximately 11,000 claims over the 12 months due to a local community action drive to encourage the submission of claims; this required bringing staff from other regions at premium cost. This phenomenon makes the problem of isolating the effect of scale exceedingly difficult.

#### B. ADMINISTRATIVE COST BY MAJOR FUNCTION

The administration of the Section 518 program does not fit neatly into discrete functional categories. However, on the basis of interviews conducted at the four field offices and data provided by those offices, direct costs can be roughly broken down into three broad functions: eligibility determination, validity determination, and processing (review and payment).<sup>1/</sup> As previously indicated, these functions correspond to the claims dispositions recorded by the central office. A breakdown by function of staff hours was constructed for each area office, and the results were weighted by the respective staff hours totals of the four offices to date

---

<sup>1/</sup>The eligibility function includes the handling of communications prior to submission of a claim, as well as eligibility determination. Validation includes appraisal staff visits and reporting, and cost estimation.



Staff compensation cost by function does not precisely mirror the breakdown of staff hours, since staff levels (clerical, technical, management) are unevenly distributed among functions. Clerical time is almost entirely devoted to eligibility and processing; technical time is largely expended on validation; and virtually all management time is on review.

Nonstaff costs, with the exception of transportation, are difficult to break down by function. The cost estimates used for office space, equipment, and supplies are based on staff time, and the allocation of these costs here is done in the same manner. It may be noted, however, that a larger fraction of office space cost may be attributable to the processing function, since all of management's staff time is devoted to that function.

Another breakdown of some interest is between initial claims and reconsiderations. Reconsiderations are claims which as initial claims were determined to be ineligible or invalid, but which reenter the administrative stream because of a request for reconsideration. Though it varies by area office and region, the area office interviews suggest that, on average, a reconsideration takes about 75 percent as much staff time as an initial claim. Since roughly 17 percent of initial claims result in a reconsideration, an estimated 13 percent of total staff time is devoted to reconsiderations.

speaking, a reasonable proxy for the claims processing cost of a "detailed inspection" HIW program. While the 518 program does not provide a warrant as such, and while it covers only serious house defects, it nevertheless has roughly the same administrative functions as those involved in processing claims for an inspection-type HIW program.

There are, however, three problems associated with the direct use of the 518 administrative cost estimate just derived as a proxy for HIS processing per claim:

Program procedures. Some of the procedures followed in the 518 program would undoubtedly be altered or dropped in an HIW program, due to differences in program purposes.

Streamlining. While the analytical work on which this appendix is founded was in no way a 518 program evaluation, it is clear from that work that potential exists for reducing some of the 518 workload by eliminating certain administrative procedures now followed.

Scale. As indicated earlier, increased claims volume probably would reduce average administrative cost; an HIW program would probably have a larger and less variable volume than the 518 program.

All three of these considerations imply that 518 administrative cost per claim may overstate HIW processing cost. An estimate of the degree to which HIW costs may be overstated can be obtained by focusing on each of the 518 administrative functions.

Eligibility determination would clearly be simpler under an HIW

Validation would change very little. Since inspection time constitutes a large part of validation time, and since postinspection reporting and cost estimation would also have to be done for an HIW program, the cost associated with this function would probably not be appreciably different under an HIW program.

The processing function holds perhaps the greatest potential for differences. With the exception of the payment component and communication with claimants, the entire function might be subject to procedural streamlining and scale effects. If it is assumed that payment and claimant communications take on average an hour of time,<sup>1/</sup> this leaves approximately 70 percent of the function to be affected. It is difficult to estimate the precise amount of staff time reduction for this part of the processing function, but a 50 percent reduction is reasonable. This suggests a 35 percent reduction in cost for the function as a whole.

---

<sup>1/</sup> It was assumed in this section that the three components of the eligibility function required equal staff time. If it is assumed that communications with claimants during processing take the same time as pre-claim communications, the resulting staff time requirement is  $9.51(.15) + (.33) = .48$  hour. It has already been estimated that the central office spends .12 hour on payment, and if area offices spend an average of 20 minutes in preparing and forwarding vouchers, the total staff time for payment is .45. This yields an overall estimate of .93 hour.

STAFF COST<sup>a/</sup>

<u>Function</u>	<u>Percent of Staff Hours</u>	<u>Percent of Staff Cost</u>
Eligibility	15%	8%
Validation	50	53
Processing	35	39

NONSTAFF COST<sup>b/</sup>

<u>Function</u>	<u>Percent of Office, Equipment, and Supplies Cost</u>	<u>Percent of Transportation Cost</u>
Eligibility	15%	0%
Validation	50	98
Processing	35	2

## TOTAL COST

<u>Function</u>	<u>Percent of Total Administrative Cost per Claim</u>
Eligibility	9%
Validation	54
Processing	37

---

<sup>a/</sup>Staff cost per function was computed by using the following break

$$\$112.10 \quad [\$112.10 \times (.85) \times (.991) + \$112.10 \times (.97) \times (.7) \times (.97)] = \$94.91.$$

While these adjustments are obviously crude, they suggest that \$95 may be a reasonable estimate for HIW claims processing costs.

Following is a listing of the Fortran computer program used to perform the calculations for the integrated analysis policy simulations reported in Chapter V of the report.

```
INTEGER MAX1,MAXJ,MAXK,MAXJS,I,J,K,JS,I,IP,MAND(8,2)
REAL V(12,8,2),APARM(8,3),XMFHA,XMCON,NP(8,2),S(8),HI(8,2)
REAL PA(3,8,2),Q(3,8,2),PLOW,PHIGH,PTNCR,DCLM,N(8,2),Z1,Z2
REAL TP,AR,CLMS(12,8,2),CLMSC(12,8,2),AI(8),ACOSJ,TOIR,PROF,P,TDIC
REAL TCMC,TCLMS,C(12,8,2),G(8,2)
REAL AA,B,CG,TEMP1,TEMP2,TEMP3,TEMP4,TEMP5
REAL TEMP6
REAL FCOST(8,3),AFHA(8),FCLMS,FPAR
REAL SUBS,TSURS
REAL NUMPAR,IVC,CLRATE,ICC,ACC,SPC,TCFHA,TCCON,COFFC,TCALL
LOAD AND PRINT MAX SUBSCRIPT VALUES
5 READ(15,10,END=999) MAX1,MAXJ,MAXK,MAXJS
10 FORMAT(4I5)
WRITE(6,1)
1 FORMAT(11,'*****FOLLOWING ARE INPUT DATA FOR INTEGRATED ANALYSIS
*PROGRAM****',11)
WRITE(6,12) MAX1,MAXJ,MAXK,MAXJS
12 FORMAT(1,' MAX1=',15,' MAXJ=',15,' MAXK=',15,' MAXJS=',14)
READ IN CLAIMS RATES AND COSTS BY MORTGAGE SECTOR
DO 20 JS=1,MAXJS
DO 18 J=1,MAXJ
READ(15,13) V(I,J,JS),I=1,MAXI
13 FORMAT(15X,12F5,4)
18 CONTINUE
DO 25 JS=1,MAXJS
DO 23 J=1,MAXJ
READ(15,21) C(I,J,JS),I=1,MAXI
21 FORMAT(15X,12F5,2)
23 CONTINUE
25 CONTINUE
WRITE(6,27)
27 FORMAT(11,'ROWS ARE HOUSEHOLD CATEGORIES AND COLS ARE REPAIR TYPE
*5 IN CLAIMS RATE AND COST MATRICES BELOW')
PRINT CLAIMS RATES AND COSTS BY SECTOR
WRITE(6,30)
30 FORMAT(10,'CLAIMS RATE MATRIX')
DO 45 JS=1,MAXJS
WRITE(6,32) JS
32 FORMAT(10,'SECTOR=',12)
DO 40 J=1,MAXJ
WRITE(6,34) (V(I,J,JS),I=1,MAXI)
34 FORMAT(10,'12F8,4)
40 CONTINUE
45 CONTINUE
WRITE(6,50)
50 FORMAT(11,'CLAIMS COST MATRIX')
```

```

DD 60 J=1,MAXJ
WRITE(6,54) (C(I,J,JS),I=1,MAXII)
FORMAT('0',I2F8.2)
CONTINUE
J WRITE ADMIN COST PARAMETERS
78 K=1,MAXK
FORMAT(5,77) (FCOST(K,M),M=1,3)
FORMAT(10X,3F10.5)
CONTINUE
75 K=1,MAXK
FORMAT(5,70) (APARM(K,M),M=1,3)
FORMAT(10X,3F10.5)
CONTINUE
CONTINUE
CONTINUE
MAT(1,1)='ADMIN COST PARAMETERS MATRIX, FHA SECTOR'
TE(6,82) MAXK
MAT(1,0)='THERE ARE',I4,3X,'TYPES OF COSTS'
94 K=1,MAXK
WRITE(6,93) (FCOST(K,M),M=1,3)
FORMAT('0',3F15.5)
CONTINUE
TE(6,80)
MAT(1,1)='ADMIN COST PARAMETERS MATRIX, CONV. SECTOR'
95 K=1,MAXK
WRITE(6,95) (APARM(K,M),M=1,3)
FORMAT('0',3F15.5)
CONTINUE
AND WRITE OUT OVERHEAD VAR CALLED XOVER
AND WRITE OUT INDICATORS FOR LIMITED TO FHA, LTFHA
075,961 XOVER
MAT(95,3)
015,971 LTFHA
MAT(12)
TE(6,98) XOVER,LTFHA
MAT(1,1)='XOVER=',F5.3,5X,'LTFHA=',I2//////////
D WRITE MORTGAGE TOTALS
015,110) XMFHA,XMCON
MAT(2F10.0)
TE(6,115) XMFHA,XMCON
MAT(1,1)='XMFHA=',F10.0,5X,'XMCON=',F10.0//////////
D WRITE HSEHLD PERCENTAGES IN DIFFERENT CATEGORIES
125 JS=1,MAXJS
READ(5,120) (NP(J,J,JS),J=1,MAXJJ)
FORMAT(15X,8F5.4)
CONTINUE

```



WRITE(6,126)

```

00 200 JS=1,MAXJS
  READ(5,197)(MAND(J,JS),J=1,MAXJ)
  FORMAT(8I2)
  CONTINUE
1 WRITE(6,205)
  FORMAT('0',MANDATORY INDICATOR BY SECTOR,COLS HSGING CATEGORIES')
00 215 JS=1,MAXJS
  WRITE(6,210) JS
  FORMAT('0','SECTOR=',I2)
  WRITE(6,212)(MAND(J,JS),J=1,MAXJ)
  FORMAT('0',8I4)
  CONTINUE
2 READ(5,218) SUBS
  FORMAT(F10.2)
  WRITE(6,220) SUBS
  FORMAT('1','SUBSIDY VALUE, SUBS=',F10.2)
  CALCULATE MORT. TOTALS IF TWO SECTORS INVOLVED
  IF(MAXJS.EQ.1) GO TO 240
00 230 JS=1,MAXJS
  DO 225 J=1,MAXJ
    IF(JS.EQ.1) NJ(JS)=NP(J,JS)*XMFHA
    IF(JS.EQ.2) NJ(JS)=NP(J,JS)*XMCON
  CONTINUE
3 DIRECT FOR SWITCHING OUT OF FHA SECTOR
  DO 235 J=1,MAXJ
    IF(MAND(J,1).NE.1) GO TO 235
    NJ(J,1)=(1.0-S(J))*N(J,1)
  CONTINUE
4 S S CONV. MORT. TO ZERO IF PROG. LMTD. TO FHA
  IF (LTFHA.EQ.1) GO TO 236
  GO TO 238
5 DO 237 J=1,MAXJ
  N(J,2) = 0.0
  CONTINUE
6 CONTINUE
7 GO TO 255
8 CALCULATES MORT. TOTALS IF ONLY ONE SECTOR INVOLVED
  CONTINUE
9 DO 250 J=1,MAXJ
  N(J,1)=NP(J,1)*(XMFHA+XMCON)
  CONTINUE
10 CONTINUE
11 WRITE(6,260) MAXJS
12 FORMAT('1',***MORTGAGE TOTALS BY CATEGORY AND SECTOR****//
  ** NO. MORTGAGE SECTORS=,I2//**MORTGAGE TOTALS=N(J,JS)*

```

```

200 270 JS=L,MAXJS
WRITE(6,265)(J,JS,N(J,JS),J=L,MAXJ)
265 FORMAT('0','N',11,' ',11,' ')='F15.1)
270 CONTINUE
PROGRAM RETURNS HERE TO MAKE PRICE ITERATIONS
P=PLOW

```

```

271 CONTINUE
WRITE(6,279)
279 FORMAT('1')
PARTICIPATION RATES ROUTINE-THREE VERSIONS CAN BE USED
LINEAR VERSION
DO 300 JS=L,MAXJS

```

```

DO 290 J=L,MAXJ
IF((P,GT,PA(3,J,JS)).OR.((P,LT,PA(3,J,JS)).AND.
(P,GT,PA(2,J,JS))) GO TO 272
* IF((P,LT,PA(2,J,JS)).AND.(P,GT,PA(1,J,JS))).OR.
(P,LT,PA(1,J,JS))) GO TO 275
IF(P,EQ,PA(1,J,JS)) G(J,JS)=0(1,J,JS)
IF(P,EQ,PA(2,J,JS)) G(J,JS)=0(2,J,JS)
IF(P,EQ,PA(3,J,JS)) G(J,JS)=0(3,J,JS)

```

```

GO TO 277
275 Z1=(0(3,J,JS)-0(2,J,JS))/(PA(3,J,JS)-PA(2,J,JS))
Z2=0(3,J,JS)-Z1*PA(3,J,JS)
G(J,JS)=Z2*(Z1*P)
GO TO 277

```

```

275 Z1=(0(2,J,JS)-0(1,J,JS))/(PA(2,J,JS)-PA(1,J,JS))
Z2=0(2,J,JS)-Z1*PA(2,J,JS)
G(J,JS)=Z2*(Z1*P)

```

```

277 IF(G(J,JS),LT,0.0) G(J,JS)=0.0
IF(G(J,JS),GT,1.0) G(J,JS)=1.0
IF (IMAND(J,JS),EQ,1) G(J,JS)=1.0
WRITE(6,280) J,JS,Z1,Z2

```

```

280 FORMAT('0','J'=',12,4X','JS'=',12,4X','Z1'=',E18.7,4X','Z2'=',
E18.7)

```

```

290 CONTINUE
300 CONTINUE

```

```

WRITE(6,301) P,MAXJS
301 FORMAT('1','***PARTICIPATION RATES BY CATEGORY AND SECTOR****')

```

```

** PRICE THIS ITERATION, P='F10.2'/' *LINEAR VERSION USED*
** NO. MORTGAGE SECTORS='I2)

```

```

PRINT PARTICIPATION RATES
WRITE(6,310)

```

```

310 FORMAT('0','PARTICIPATION RATES,G(J,JS)')
DO 320 JS=L,MAXJS

```

```

WRITE(6,315)(J,JS,G(J,JS),J=L,MAXJ)
315 FORMAT('0','G',11,' ',11,' ')='F10.5)

```

```

320 CONTINUE
PARTICIPATION TOTALS ROUTINE

```

```

00 330 J=1,MAXJ
      H(J,JS)=G(J,JS)*N(J,JS)
      CONTINUE
330 CONTINUE
340 CONTINUE
      FPAR = 0.0
      TPAR=0.0
      DO 350 JS=1,MAXJS
        DO 345 J=1,MAXJ
          TPAR=TPAR+H(J,JS)
          IF (JS.EQ.1) FPAR=FPAR+H(J,1)
        CONTINUE
      CONTINUE
350 CONTINUE
      FPAR = FPAR/TPAR
      WRITE (6,352) MAXJS
352 FORMAT(1,'***PARTICIPATION TOTALS BY CATEGORY AND SECTOR****')
      * , 'NO. MORTGAGE SECTORS=',127777' PARTICIPATION TOTALS+H(J,JS)
      DO 360 JS=1,MAXJS
        WRITE(6,355)(J,JS,H(J,JS),J=1,MAXJ)
        FPAR=0.0 , 'H',11,'.11,')=,F15.1)
      CONTINUE
360 CONTINUE
      WRITE(6,365) TPAR,FPAR
365 FORMAT(0,'**TOTAL PARTICIPATING,TPAR=',F10.1//
      * , 'FRACTION OF ALL PARTICIPANTS THAT ARE IN FHA SECTOR',
      * , FPAR=',F10.7//')
      CLAIMS ROUTINE
      COMPUTE CLAIMS TOTALS AND CLAIMS COSTS
      FCLMS = 0.0
      TCLMS=0.0
      DO 380 JS=1,MAXJS
        DO 370 J=1,MAXJ
          DO 362 I=1,MAXI
            CLMS(I,J,JS)=V(I,J,JS)*H(J,JS)
            CLMSC(I,J,JS)=C(I,J,JS)*CLMS(I,J,JS)
            TCLMS=TCLMS+CLMS(I,J,JS)
            IF (JS.EQ.1) FCLMS=FCLMS+CLMS(I,J,1)
          CONTINUE
        CONTINUE
      CONTINUE
362 CONTINUE
370 CONTINUE
380 CONTINUE
      FCLMS = FCLMS/TCLMS
      WRITE(6,385) TCLMS,FCLMS
385 FORMAT(1,'**CLAIMS TOTALS BY REPAIR TYPE,CATEGORY, AND SECTOR**')
      * , 'TOTAL CLAIMS,TCLMS=',F20.2//
      * , 'FRACTION OF ALL CLAIMS THAT ARE IN FHA SECTOR,FCLMS=',
      * F10.7//')
      WRITE(6,400)
400 FORMAT(1,'**CLAIMS TOTALS MATRIX**')
      ROWS ARE HOUSEHOLD TYPES**//

```

COLUMNS ARE REPAIR PROBLEMS.1)

415 JS=1,MAXJS

WRITE(6,402) JS

FORMAT('0',1,2)JS

DO 410 J=1,MAXJ

WRITE(6,405)(CLMS(I,J,JS),I=1,MAXI)

FORMAT('0',12F10.1)

CONTINUE

CONTINUE

WRITE(6,417)

FORMAT('1',1)CLMS ARE HOUSEHOLD TYPES.1)

COLUMNS ARE REPAIR PROBLEMS.1)

430 JS=1,MAXJS

WRITE(6,420) JS

FORMAT('0',1,2)JS

DO 425 J=1,MAXJ

WRITE(6,422)(CLMSC(I,J,JS),I=1,MAXI)

FORMAT('0',12F10.1)

CONTINUE

CONTINUE

ROUTINE COSTS ROUTINE

50. K=1,MAXK

AFHAI(K)=FCOST(K,1)+(FCOST(K,2)\*TPAR\*EPAR)+(FCOST(K,3)\*DCLM\*TCL

MS\*FCLMS)

((K)=APARM(K,1)+(APARM(K,2)\*TPAR\*(1,0-FPAR)) +

(APARM(K,3)\*DCLM\*TCLMS\*(1,0-FCLMS))

CONTINUE

WRITE(6,452)

FORMAT('1',1)ADMINISTRATIVE COSTS BY COST CATEGORY.1)

, AI(K) IS FOR CONVENTIONAL SECTOR.1)

, AFHAI(K) IS FOR FHA SECTOR.1)

WRITE(6,454)(K,AI(K),K=1,MAXK)

FORMAT('0',1,1)AI(K)=1,E18.7)

WRITE(6,458)(K,AFHAI(K),K=1,MAXK)

FORMAT('0',1,1)AFHAI(K)=1,E18.7)

STATISTICS ROUTINE, COMPUTE AND PRINT RESULTS

\*\*\*\*\*SUMMARY STATISTICS\*\*\*\*\*1)

WRITE(6,463) P

FORMAT('0',1,1)P=1,E10.2)

THIS ITERATION, P=1, F10.2)

WRITE(6,465) LTFHA

FORMAT('0',1,1)LTFHA=1,E18.7)

WRITE(6,467)

FORMAT('1',1)MANDATORY INDICATOR BY SECTOR.1)

70 JS=1,MAXJS

WRITE(6,468)(MAND(J,JS),J=1,MAXJ)

FORMAT('0',1,1)MAND(J,JS)=1,E18.7)

CONTINUE

WRITE(6,471)

471 FORMAT(1-1,\*\*\*\*\*FHA\_SECTOR\*\*\*\*\*1)

NUMPAR=TPAR\*FPAR

WRITE(6,473) NUMPAR

473 FORMAT(10,'NUMBER OF PARTICIPANTS=',F15.1)

TVC=TCLSM\*FCLMS

CLRATE=0.0

IF (NUMPAR.NE.0.0) CLRATE=TVC/NUMPAR

WRITE(6,476) CLRATE

476 FORMAT(10,'CLAIMS RATE=',F15.9)

WRITE(6,478) TVC

478 FORMAT(10,'TOTAL VALID CLAIMS=',F15.1)

TCC=0.0

DO 482 J=1,MAXJ

DO 480 I=1,MAXI

TCC=TCC+CLMSC(I,J,1)

CONTINUE

482 CONTINUE

ACC=0.0

IF (TVC.NE.0.0) ACC=TCC/TVC

WRITE(6,483) ACC

483 FORMAT(10,'AVG REPAIR COST PER CLAIM=',F15.2)

WRITE(6,484) TCC

484 FORMAT(10,'TOTAL CLAIMS REPAIR COST=',F15.2)

SPC=AFHA(11)+AFHA(12)

WRITE(6,488) SPC

488 FORMAT(10,'SALES AND PRE-PURCHASE COST=',F15.2)

WRITE(6,490) AFHA(3)

490 FORMAT(10,'ADMINISTRATIVE CLAIMS\_COST=',F15.2)

TCFHA=TCC+SPC+AFHA(3)

WRITE(6,492) TCFHA

492 FORMAT(10,'TOTAL COST, FHA SECTOR=',F20.2/////////)

WRITE(6,494)

494 FORMAT(1-1,\*\*\*\*\*CONVENTIONAL SECTOR\*\*\*\*\*1)

NUMPAR=TPAR\*(1.0-FPAR)

WRITE(6,496) NUMPAR

496 FORMAT(10,'NUMBER OF PARTICIPANTS=',F15.1)

TVC=TCLSM\*(1.0-FCLMS)

CLRATE=0.0

IF (NUMPAR.NE.0.0) CLRATE=TVC/NUMPAR

WRITE(6,498) CLRATE

498 FORMAT(10,'CLAIMS RATE=',F15.9)

WRITE(6,500) TVC

500 FORMAT(10,'TOTAL VALID CLAIMS=',F15.1)

TCC=0.0

DO 506 J=1,MAXJ

DO 504 I=1,MAXI

TCC=TCC+CLMSC(I,J,2)

CONTINUE

504

506 CONTINUE

ACC=0.0

IF (TVC.NE.0.0) ACC=TCC/TVC

WRITE(6,508) ACC

508 FORMAT('0','AVG REPAIR COST PER CLAIM=',F15.2)

WRITE(6,512) TCC

512 FORMAT('0','TOTAL CLAIMS REPAIR COST=',F15.2)

SPC=A(1)\*A(2)

WRITE(6,514) SPC

514 FORMAT('0','SALES AND PRE-PURCHASE COST=',F15.2)

WRITE(6,516) A(3)

516 FORMAT('0','ADMINISTRATIVE CLAIMS COST=',F15.2)

TCCON=TCC+SPC+A(3)

WRITE(6,518) TCCON

518 FORMAT('0','TOTAL COST, CONVENTIONAL SECTOR=',F20.2)//////

TSUBS = TPAP\*SUBS

WRITE(6,497) TSUBS

497 FORMAT('0','TOTAL SUBSIDIES, TSUBS=',F15.2)

COFFC=AFHA(4)\*A(4)

TCALL=COFFC+TCFHA+TCCON

TOTR=TPAR\*P

PROF=TOTR-TCALL

WRITE(6,522) COFFC,TCALL,TOTR,PROF

522 FORMAT('0','CENTRAL OFFICE COSTS=',F15.2)///

\* - TOTAL COSTS, ALL SECTORS=,F20.2)///

\* - TOTAL REVENUES=,F20.2)///

\* - PROFIT=,F15.2)///

CHECKS TO SEE IF PRICE ITERATION IS COMPLETE

IF NOT COMPLETE, REPEATS MORTGAGE TOTALS ROUTINE THROUGH

P=P+PINC

IF (P.LE.PHIGH) GO TO 271

GO TO 5

510 WRITE(6,515) TEMP5,J,JS

515 FORMAT('0','\*\*\*\*\*PROGRAM TERMINATES PREMATURELY'///

\* 'ILLEGAL ARITHMETIC OPRN. ATTEMPTED IN PART. RATES ROUTI',

\* 'NE'///' QUADRATIC FORMULA UNSOLVABLE'///

\* 'ATTEMPT TO TAKE SORT OF NEG. NO.'///

\* 'RADICAL=,F15.5,4X,J=,I2,4X,JS=,I2)

GO TO 530

520 WRITE(6,525) AA,J,JS

525 FORMAT('0','\*\*\*\*\*PROGRAM TERMINATES PREMATURELY'///

\* 'ILLEGAL ARITHMETIC OPRN. ATTEMPTED IN PART. RATES ROUTI',

\* 'NE'///' QUADRATIC FORMULA UNSOLVABLE'///

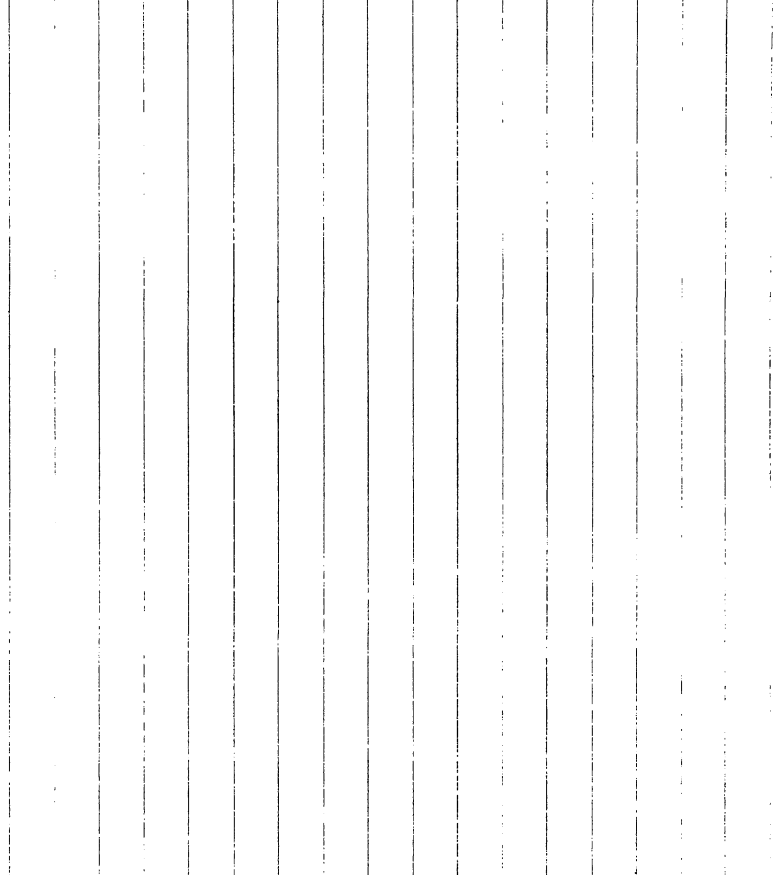
\* 'ATTEMPT TO DIVIDE BY ZERO'///

\* 'DIVISOR, AA=,F15.5,4X,J=,I2,4X,JS=,I2)

530 CONTINUE

GO TO 5

999 WRITE(6,950)







## A. INTRODUCTION

The analysis conducted for the Home Inspection and Warranty (HIW) Study, which is presented in this report, is based upon three principal sets of data specifically collected as part of the study. The first data set consists of the responses to a telephone survey of a national sample of 1,814 homeowners who had purchased their homes approximately two years prior to the time of our interview (March-April 1977). This survey (the Needs Survey) collected information on the incidence of various types of home repair problems experienced by the respondents since the time they had purchased their houses, and the costs of such repairs. The second data set contains the responses of a separate national sample of 1,819 recent home buyers (since October 1976) to a second telephone survey (the Demand Survey), designed to estimate respondents' interest in, and willingness to purchase, a variety of potential HIW program packages. The third data set is information collected from individuals who are currently involved either in operating or marketing various existing private HIW programs, or in operating public programs to protect consumers against hidden defects in houses.

This appendix describes the methods employed to collect these data and the results of the three survey efforts. Section B discusses the sample design developed for the two telephone surveys and the procedures followed to obtain and prepare the samples. Section C describes the

discusses the collection of information on existing private and public HIW programs.

## B. SAMPLING FOR THE NEEDS AND DEMAND SURVEYS

The sample design called for 1,800 observations for each of the two surveys. Half of each sample consisted of homeowners who purchased their homes with FHA mortgage insurance and half with conventional financing. Aside from the FHA/non-FHA split, no other stratification of the sample frame was attempted, although care was taken to ensure adequate geographic representation. In the design of the sample, MPR paid special attention to operational feasibility, due to the extraordinary time constraint imposed by the four-month schedule of the project.

### 1. Sample Composition

Needs Survey. The concerns of Congress in mandating the study determined that the sample be limited to owner-occupied houses with fewer than five dwelling units per structure, and limited to existing, as opposed to newly built, houses. However, the composition of the sample in terms of the number of years since purchase of the dwelling remained an open issue. Congress had expressed interest in potential HIW programs that might be in force as long as two or three years after the purchase of a home.

randomly drawn sample of owners who had purchased their homes within the last three years would likely result in a sample which would roughly be divided equally into owners who had purchased homes one, two, and three years ago. The effective cell sizes for computing the repair incidence in the first, second, and third years of ownership would therefore be 300, 200, and 100, respectively, assuming questions were asked about all problems experienced since the purchase of the house. The reduced sample size in the second and third years would reduce correspondingly the precision of estimates for those time periods. The effect of reduced sample size would become even more acute in estimates of repair costs, where the samples would be diminished further by the removal of responders who had experienced no problems during one or more of those years.

An alternative sample design would have been to select a sample consisting entirely of homeowners who had purchased their houses three years ago. Asking about the timing of each repair problem would increase the sample size, using the same example, to 300 in each year. Offsetting this advantage in design, however, were two potential problems in selecting the sample only from three-year owners. First, the three-year sample would be subject to increased recall error in terms of their experiences during the first year of ownership, which is the period with the heaviest incidence of problems.<sup>1/</sup> The second problem was the

housing problems.

Given these competing considerations, the Needs Survey sample frame was defined to be homeowners who had purchased their homes two years ago. This choice maximized the sample size for the first two years, while reducing the potential problems of recall and mobility. Although the ability to estimate directly the incidence of problems in the third year was lost, the third year is clearly less important than the first two years of homeownership, and some projection of problems during the third year is still possible by using data from the first two years.

Demand Survey. The issue of the composition of the demand sample was simpler. The intent of the Demand Survey was to estimate the interest of home buyers in purchasing alternative HIW packages.<sup>1/</sup> The survey should approximate the decision process and the circumstances under which a person would make the decision to purchase such a program. The ideal respondent would therefore be a person who was just about to buy a house. In the "real world," no list of such persons is available. As a result, the sample design called for individuals who had "just" bought their houses. The exact timing became a purely operational issue (i.e., how

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<sup>1/</sup> Home sellers are also important purchasers of warranties. The expressed interest of Congress in home buyers, as well as operational considerations, led to the decision not to attempt to analyze this demand

members who had purchased their homes as early as October 1976.

## 2. Stratification

Stratification of a survey sample is necessary when: (1) it is desired to undertake separate analyses regarding specific subsets of the overall population; and (2) some of these subsets are so small that simple random probability sampling cannot be depended upon to result in adequate numbers of subpopulation observations. In this project, one of the basic mandates was to investigate the need for an HIW program in connection with the FHA program. While this interest was extended to conventionally financed houses, there was clearly a strong interest in a separate analysis of the FHA population. Because the FHA segment of the existing housing market accounts for only about 7 percent of the total market for existing houses, stratification by type of mortgage (FHA versus non-FHA) was clearly warranted.<sup>1/</sup> Given at least equal interest in the FHA population an equal number of sample observations were chosen from each type of mortgage, in order to obtain similar precision in each segment of the market.

A number of other variables (e.g., age of house, region, and sale price) were also considered as potential stratification measures. While these are important dimensions, along which repair records and the

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<sup>1/</sup> See Appendix C.1 for calculation of market share of FHA-insured

repair problems. Houses built within the ten-year period preceding purchase are likely to have a substantially lower incidence of repair than older houses, because many of the original components of these relatively new houses will not yet have had time to wear out. It is probable that there is a substantial difference in the incidence of repair between houses built since the start of the post-World War II housing boom and houses built before the war. However, adequate numbers of observations in each of the age groups identified above can be achieved using simple random sampling. Of all owner-occupied housing in 1974 approximately 23 percent had been built during the previous ten years and another 33 percent had been built between 1950 and 1964.<sup>1/</sup> Such proportions are sufficient to ensure that a self-weighting sample will yield adequate numbers of observations in these different age categories.

Since national estimates were the primary interest, stratification by region was not necessary, except to ensure adequate representation in all regions. Sufficient numbers of observations from each region will then be available from the self-weighted sample for any regional analysis desired.<sup>2/</sup>

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<sup>1/</sup>U.S. Bureau of the Census, Statistical Abstract of the United States: 1975, 96th edition, Washington D.C.: GPO, 1975.

<sup>2/</sup>The actual distribution of the sample frame by numbers of existing houses was: East, 16 percent; South, 35 percent; North, 28 percent; and West, 21 percent.

taxes and the level of public services. These factors are unlikely to be correlated with repair incidence. A second reason for not stratifying by sales price is that appropriate categories of sales price can best be established by dividing the self-weighted sample into approximately equal groups for analysis.

### 3. Sample Size

Decisions on sample size always come down to a trade-off between greater precision, and cost and schedule constraints. Given the extremely tight schedule for the entire effort, the decision became primarily one of what acceptable level of precision could be obtained within the operational limits of the study.

In choosing sample sizes, MPR employed an analysis equivalent to that shown in Appendix A. Assumptions were made about the probability of the incidence of repairs over the two-year period and the mean size and distribution of repair costs during that time. The specific calculation of the estimated precision of estimates will not be repeated here, since the actual precision of the estimates made in the report is calculated in Appendix A. In fact, the original assumptions about the incidence of repair problems were low. As a result, the precision of the incidence and repair cost estimates are higher than originally assumed. The process described led to the decision to select sample



of the population to be sampled. In the selection of the FHA sample was able to approximate very closely this ideal setting. HUD maintained in Washington, D.C., a computerized file of all FHA-insured mortgages, the Cross Reference Transactions (CRT) file. The file contains the name and address of the buyer, endorsement date of the mortgage (the date FHA insurance was approved by HUD), as well other information about the house. For 1975, the CRT file contains all FHA transactions for the year ordered randomly within each FHA area office. For the Needs sample therefore, a simple one-in-n sample of all records with an endorsement date of March 1975 would yield a true national sample.

At the time of selecting the FHA sample (February 1977), the CRT file had not been updated with data past November 1976. The most recent data available were records of all endorsements processed by HUD in December 1976, representing the next file to be used to update the CRT file. The file contained an estimated two-thirds of the endorsements made in December and one-third of the endorsements made in November. Since these were the most recent data available on FHA mortgage-insured mortgages, this file was used as the sampling frame for the Demand sample. The sample was also ordered randomly within area office; therefore, a one-in-n sample was usable here, as well.

contained the date on which the mortgage was endorsed by HUD, rather than the date of sale. This date was generally later than the date of closing on the house, although normally within a month. As a result, some of the names on the list were of homeowners who had purchased their homes outside of the time frame desired for the study.

The programming staff at HUD drew two samples according to MPR's specifications. The Needs sample consisted of every third record from the CRT file which was an existing one-to-four family house insured under Section 203 of the National Housing Act, and whose endorsement date was March 1975. The Demand sample consisted of every third record from the December update file which was an existing one-to-four family house insured under Section 203.

The two separate samples were produced in print-out form and shipped to Princeton. There they were keypunched onto cards in order to produce labels for the mailing of advance letters to respondents and for attachment to the field assignment materials so that the respondents could be identified at the time of the interview.

## 5. Selection of the Non-FHA Sample

Choice of the Sample Frame. While the sample frame for obtaining the FHA sample was relatively easy to define and obtain, the question of how to select a sampling frame from which to obtain names of purchasers of homes with conventional mortgages was considerably more complex.

data sources considered were:

- (1) a computerized data base maintained by the Federal Home Loan Mortgage Corporation (FHLMC), which contains information on mortgages bought by that corporation;
- (2) records of individual mortgage lenders;
- (3) data reported by financial institutions under the Real Estate Settlement and Procedures Act (RESPA) on new mortgages; and
- (4) Multiple Listing Service (MLS) data maintained by local Boards of Realtors.

All of these were rejected for a combination of operational and analytic reasons. The primary reason for rejecting all of them except the records of individual lenders was that they could provide only incomplete lists of home purchasers, thus seriously biasing any sample that might be drawn.

At the same time, all of these sources presented major operational barriers to their use. Preliminary checking indicated that access to either the FHLMC data or the records of individual mortgage lenders would not be permitted. At best, obtaining such access would have required a very time-consuming effort. The RESPA data did not exist at all for the Needs sample and did not appear to have sufficient detailed information on individual buyers to enable MPR to locate them. Data on the MLS listing pertained primarily to sellers rather than buyers and were generally maintained by date of listing rather than by date of sale.

standpoint of analytic soundness, this was the best possible sample frame, since it contained records of all home purchases, including even the relatively small subset of such purchases which did not involve any mortgage at all. Access to those records was no barrier, since such records are in the public domain. The operational problems that were encountered centered primarily on obtaining accurate address and telephone information on the buyer. In addition, these records contained significant numbers of property transfers which were not of interest, such as vacant land and commercial properties. However, these problems were relatively more tractable than the potential problems with the other data sources.

Selection of the Sample. While county property records provide a good sample frame, it was obviously not feasible to draw the sample from all of the roughly 3,000 counties in the United States. In each county, a sample selector had to pull a sample manually from the records and enter the required data on an information form. Therefore, a manageable, limited number of counties had to be selected randomly from which the sample of respondents would be drawn.

To provide an unbiased sample, 60 counties were chosen so that the probability of any given county being selected was roughly proportional to the number of existing one- to four-family structures sold per year in the county. This number of existing home sales was approximated by a per county constructed move variable, which was calculated from data published

plied by a mobility rate factor constructed by dividing the number of owner-occupied units moved into during the period January 1969 to March 1970 in that county by the total number of owner-occupied units in the county.

Based on this estimate, all counties in the United States were listed in descending order by number of existing home sales, within four regions of the country (East, South, North Central, and West), with the move variable shown for each county. The sum of all estimated sales of existing homes was then divided by 60 to obtain a sampling interval for the entire United States. With a random start, using this interval to count through the estimated number of housing sales, 60 counties were selected (see Table I.1). Two large counties (Cook, Illinois, and Los Angeles, California) were selected twice and were therefore assigned double samples. Due to operational difficulties in obtaining the sample in Honolulu, Hawaii, the nearest county on the list (Multnomah, Oregon) was substituted.

Fifteen respondents from each county had to be interviewed to reach the desired total of 900 non-FHA respondents per survey. To select the individual respondents, MPR sent sample selectors to each county to draw a sample of individuals who had purchased their homes during the relevant time period for the given survey (March 1975 for the Needs Survey, and January 1977 for the Demand Survey).

EAST	
County	County Seat
Suffolk, NY	Riverhead
Queens, NY	Jamaica
Franklin, MA	Greenfield
Ocean, NJ	Toms River
Delaware, PA	Media
Passaic, NJ	Paterson
Luzerne, PA	Wilkes-Barre
Cape May, NJ	Cape May
	Court House
Windsor, VT	Woodstock

SOUTH	
County/ Parish	County/ Parish/Seat
Harris, TX	Houston
Dade, FL	Miami
Tarrant, TX	Fort Worth
Shelby, TN	Memphis
Orange, FL	Orlando
Montgomery, MD	Rockville
East Baton Rouge, LA	Baton Rouge
Nueces, TX	Corpus Christi
Cobb, GA	Marietta
Collin, TX	McKinney
Gaston, NC	Gastonia
Etowah, AL	Gadsden
Berkeley, SC	Moncks Corner
St. Landry, LA	Opelousas
Douglas, GA	Douglasville
Stephens, OK	Duncan
Santa Rosa, FL	Milton
Chester, SC	Chester
Lincoln, TN	Fayetteville
Franklin, GA	Carnesville
Grundy, TN	Altamont

NORTH CENTRAL	
County	County Seat
Cook, IL	Chicago
Cook, IL	Chicago
Wayne, MI	Detroit
Oakland, MI	Pontiac
Hamilton, OH	Cincinnati
Du Page, IL	Wheaton
Sedgwick, KS	Wichita
Dane, WI	Madison
Shawnee, KS	Topeka
Muskegon, MI	Muskegon
Warren, OH	Lebanon
Cass, MO	Harrisonville
Cerro Gordo, IA	Mason City
Carroll, IL	Mt. Carroll
Fayette, OH	Washington
	Court House
Buena Vista, IA	Storm Lake
Custer, NE	Broken Bow

WEST	
County	County Seat
Los Angeles, CA	Los Angeles
Los Angeles, CA	Los Angeles
Orange, CA	Santa Ana
Maricopa, AZ	Phoenix
King, WA	Seattle
Riverside, CA	Riverside
Multnomah, OR*	Portland
Bernalillo, NM	Albuquerque
San Joaquin, CA	Stockton
Solano, CA	Fairfield
Yavapai, AZ	Prescott
Santa Fe, NM	Santa Fe
Jerome, ID	Jerome

r by a telephone call from MPR, which was designed to determine  
ific information on the size and format of the records in each county,  
ell as to set up a schedule for the sample selectors to visit the  
ty office. This information was recorded on a separate form for each  
ty (Exhibit I.2).

Sample selectors were hired and trained in two groups at MPR's  
ces in Princeton and Denver. Training took place on February 9 and 10  
included an overall introduction to the HIW study, a detailed descrip-  
a of the samples to be selected, a review of the types of property  
ords expected to be found, procedures for selecting the sample from the  
ords, and rules for finding and recording the desired data on each  
pendent onto printed Information Sheets (Exhibit I.3).

Upon reaching a specific county office, the sample selectors were  
ructed to inspect the property records files and fill in a Record of  
ty Files Form (Exhibit I.4). This form was designed both as a check on  
previous data collected on each county's records and as a guide for the  
ple selectors. Once this form had been filled out, the sample selector  
ed the Princeton office to discuss the files and to obtain a random  
rt number and sampling interval for each sample. The Princeton contact  
culated the interval by dividing the number of records in the file by 90  
rounding down to the nearest integer. The random start point was  
igned by choosing a random number between 1 and n from a random number

from each county after losses to the sample due to ineligible property transfers (e.g., nonresidential properties or FHA mortgages), no telephone numbers, refusals, or other failures to contact the respondent. In several smaller counties, there were fewer than 90 property transfers in the target month. When this occurred, the sample selector was instructed to select all transfers in the target month and obtain the remaining sample points from property transfers that occurred during the month prior to the target month. If still unsuccessful, additional sample points were collected in turn from the subsequent month and two months prior to the target. If after this process fewer than 90 records had been obtained, the sample was allowed to remain at fewer than 90.

Frequently the street address of the property being transferred (or the buyer's new address) was not contained on the property transfer document. Legal property descriptions were the only location data on these records. In such cases, the sample selector went to the county tax office or to other local sources to obtain street addresses. On some properties, no address could be found, and these information sheets were returned to MPR with missing information. Normally, very little of the "Desired Additional Data" on the bottom half of the Information Sheet was obtained, except the seller's name, which was usually present. If time permitted, the sample selectors began the search process for telephone numbers for the selected samples by obtaining a local telephone directory or by calling local



was selected by March 25.

## 6. Preparation of the Samples

Before the survey was fielded, a number of tasks, which varied somewhat between the FHA and non-FHA samples, had to be accomplished. For the non-FHA samples, the first step was to check the Information Sheets to eliminate obviously ineligible property transfers such as commercial properties, new houses, or title transfers between family members.<sup>1/</sup> For the second step, the survey staff randomly ordered the remaining Information Sheets within each county and assigned identification numbers to each. For the FHA samples, the first step was to keypunch the data. Then the data was randomly sorted by computer, divided geographically into two roughly equal-sized groups so that half of each sample could be interviewed in Princeton and half from Denver, and assigned ID numbers. Next, two addresses were printed for each sample point in the FHA samples. One was placed on the FHA sample Information Sheet (Exhibit I.5); the other was saved separately to be used as an address label for the subsequent mailing of letters to respondents.

At this point, both the FHA and non-FHA samples existed in the form of randomly ordered stacks of Information Sheets. For both samples, the next step was to complete the search for telephone numbers for each sample point. In both Princeton and Denver, telephone searchers used local telephone directories, where available, for the county samples, or county telephone directory assistance to locate numbers. When a number was found, the

same last name in the same area or town: If fewer than four such numbers were found, each of them and corresponding addresses (if available) were entered on an Address Correction Form (Exhibit I.6) which was stapled to the front of the Information Sheet. Where four or more numbers were found by this process, the searcher wrote "more than 3 numbers" on the Information Sheet. If no number was found for the respondent, then "no number" was entered on the Information Sheet.

Table I.2 shows the overall results of the telephone-number search process. The initial telephone-number search yielded telephone numbers for 71 percent of the non-FHA samples and 63 percent of the FHA samples. In an attempt to increase the number of telephone numbers available, MPR mailed a letter to those respondents for whom there was an address but no telephone number because there was either no listing or the number was unpublished. These MPR letters (Exhibits I.7 and I.8) also enclosed a return postcard (Exhibit I.9) on which MPR asked the potential respondents to enter a telephone number at which they could be reached. MPR mailed these letters to all potential respondents who would have been included in an original mailing of introductory letters from HUD if their telephone numbers had been found. A total of 3,019 MPR letters were mailed. Respondents returned 311 postcards (10.3 percent), of which 140 resulted in completed interviews.

TABLE I.2  
RESULTS OF TELEPHONE-NUMBER SEARCH

	Initial Sample	Telephone Numbers Obtained During Original Search	Percent of Initial Sample	Telephone Numbers Returned By Respondents	Total Telephone Numbers
	2,572	1,530	59.5	106	1,636
HA	4,916	3,519	71.6	69	3,588
	2,199	1,488	67.7	47	1,535
HA	4,967	3,533	71.1	89	3,622
AL	14,654	10,070	68.7	311	10,381

I.11). MPR mailed these letters to the first 30 respondents from each county in the non-FHA samples who had telephone numbers. For the FHA samples, 1,200 letters of each type were mailed. Later, during the first period, additional letters were mailed to samples in which the initial mailing was insufficient to generate 15 completed interviews.

### C. SURVEY DESIGN AND OPERATIONS

#### 1. Development of the Survey Instruments

Survey development began as soon as the initial contract was signed on January 10. Draft instruments were completed by February 1 for review by HUD. Following this review, the instruments were pretested on a limited sample of respondents (9 per survey) on February 7 and 8. As a result of the pretest, the Needs Survey was revised in a minor way. The Demand Survey required more extensive revisions and was therefore pretested a second time. The final versions of both instruments were submitted to HUD and OMB on March 1. The remainder of this section will briefly discuss the contents of each survey instrument.

Needs Survey (Exhibit I.12). The Needs Survey was divided into three major sections. The first section (Qs. 1a-7), which was printed and bound separately from the remainder of the interview, contained a series of screening questions designed to identify respondents with houses that were not eligible for the sample. When ineligible respondents were identified, the interview was terminated.

moved in, Questions 18 to 20 determined the incidence of all repair problems costing more than \$50 to repair since the purchase of the house. Next, a series of questions (Qs. 24-43, 44-63, etc.) obtained detailed descriptive and cost information on each of six problems which cost more than \$100 to repair. If more than six repair problems costing over \$100 to repair were found, the questionnaire picked up data on the first six problems to occur since the purchase of the house.

The third section of the Needs Survey (Qs. 148-162) collected basic demographic data on the respondents and also information on the characteristics of the house.

Demand Survey (Exhibit I.13). The Demand Survey was similarly divided into three major sections. The first section (Qs. 1a-7) and the third section (Qs. 24-39) were essentially identical to the corresponding sections of the Needs Survey.

The second section (Qs. 8-23) obtained the respondents' opinions and preferences among a variety of components of HIW programs. Then the respondent was asked directly how likely he or she would be to purchase each of four specific HIW plans at various prices. Since the order in which these four plans were presented could influence the responses, four versions of the instrument were printed which varied the order of the plans. During the field period, these different versions were randomly assigned to respondents, so that equal numbers of respondents received

Manager in Princeton provided overall direction of the survey effort, assisted by two supervisors in Princeton, and by a survey site manager and three supervisors in Denver.

In Princeton, one supervisor was responsible for the Demand Survey and the other for the Needs Survey. On the Demand Survey, two shifts, each with four interviewers, worked from 4:00 P.M. to 8:00 P.M. and from 6:00 P.M. to 10:00 P.M. during the week. Although initially the same staffing arrangement was established for the Needs Survey, the hours from 4:00 to 6:00 P.M. proved to be very unproductive, and the entire staff switched to the 6:00 to 10:00 P.M. shift after the first week. Interviewers also worked during the day on Saturdays and Sundays.

In Denver, two supervisors shared the responsibility for the Needs Survey, while the third supervisor handled the Demand Survey. Due to a somewhat shortened field period in Denver, each interviewer worked six hours (4:00 to 10:00) on weekday nights, as well as during the day on weekends. Initially, 11 interviewers worked on the Needs Survey, and 9 worked on the Demand Survey. In both locations, as the field period neared completion, additional interviewers were hired to help finish on schedule, and hours became more flexible in order to contact hard-to-reach respondents.

Training took approximately one-and-a-half days in each site. The training agenda included the following topics: an overview of the HIW

paired off and practiced conducting interviews by using prepared scripts.

### 3. Field Procedures

Prior to the field period, the survey staff prepared a set of master logs of all potential sample points. These logs separated the Needs and Demand samples, and the FHA and non-FHA samples. Within the non-FHA samples, the logs were broken down by county. Within each sample, the sample points were entered in ID number order. The ID number had been assigned randomly during the preparation of the sample. An example page from a master log is shown in Exhibit I.14.

Each day, prior to the start of interviewing, the supervisor would prepare assignments for each interviewer. The supervisor would attach a contact sheet (Exhibit I.15), Information Sheet, and a set of screening questions (Qs. 1-7) for each sample point to be worked. On a given day, an interviewer's assignment normally consisted of between 20 and 30 sample points. Late in the field period, this number declined. All assignments were entered onto the master log. An interviewer kept a particular sample point until it reached final status, unless an appointment was made to conduct the interview at a time when the interviewer would not be working. At the end of each shift, the supervisors would remove finished assignments from the interviewer's packet and enter them onto the master log.

Initial assignments of 15 respondents per county and 900 FHA

and the telephone number on the corresponding Information Sheet. As assignments were finished, the final status of each sample point was recorded on the log. All ineligible respondents were replaced immediately with a new sample point from the same county or FHA list. The supervisor selected as the replacement the first unassigned respondent with a telephone number on the appropriate list, checking to see if any new telephone numbers had been entered. Before replacing a refusal or other noncompleted sample point, the supervisor would review the contact sheet to determine if additional attempts should be made before replacement. If the sample point was to be replaced, the replacement procedure described above was followed.

Late in the field period, some smaller county samples did not have sufficient numbers of sample points to obtain 15 completed interviews. In such cases, replacements were permitted from other counties in the same geographic region which were immediately above or below the problem county on the original list of selected counties. The final completion statistics by county are shown below in Section 7, "Survey Results."

Each interviewer attempted to complete as many interviews as possible during the regular shift. Each attempt to contact a respondent was recorded on the contact sheet. Only one provisional status of "busy" or "no answer" was permitted on a given day. Interviewers could use only the provisional statuses. The final status section of the contact sheet was filled out later by the Quality Control (QC) staff. A minimum of five



judgments based upon the interviewers' comments as to whether an attempt should be made to convert a refusal.

Reports of progress for both surveys by county and FHA samples were prepared by the supervisors on a semiweekly basis for project management review. Internal reports on individual interviewer productivity and cumulative completion figures were also maintained.

#### 4. Quality Control Procedures

At minimum, the first five completed interviews of all interviewers were checked question-by-question to make certain that all proper interviewing procedures were being followed. At this point in time, the survey manager made a judgment about the overall quality of each interviewer's work. If an interviewer was performing satisfactorily, then the QC staff would completely review only one or two interviews completed by that interviewer each day. All other work would be reviewed only for a limited set of key questions. Interviewers whose work was not yet of sufficiently high quality would continue to have all work thoroughly checked until their quality improved; if no improvement was apparent, they were taken off the survey.

If any problems were uncovered during the first five interviews, the QC reader would fill out a Problem Sheet (Exhibit I.16) and return the interview to the interviewer. The interviewer was required to correct the

which would require a recontact of the respondent if corrections were necessary.

In addition to the QC reading of the interviewers' work, supervisors monitored actual interviews in progress from their call directors. Initial plans called for a 5 percent monitoring of each staff member's work. Time constraints prevented this level of review; however, some monitoring of each interviewer was accomplished. This technique was very effective in catching interviewer problems for the purpose of retraining.

At the time of data entry of the completed interviews, an additional edit check was made by the computer. This edit checked the range on each piece of data, as well as the logic of the interview.

## 5. Coding

The Demand Survey required no coding. All questions contained only precoded responses, except Questions 21.b and 22.b. A review of these questions revealed that about 5 percent of the respondents in each sample experienced "other" types of problems since the time they had moved into their houses. These tended to be problems that would be ineligible for warranty coverage (e.g., driveways or pools). No additional coding was done for either question.

each description, as follows:

(1) Problem Type

A two-digit code (Table I.3) was used to identify the component of the house which was the subject of the problem. In cases where more than one component appeared to have been involved, the problem was coded under the component where the problem started (e.g., a leaky roof which subsequently led to rotting beams was coded under the roof category).

(2) Eligibility Code

A one-digit code was used to specify problems which would be eligible for coverage under a HIW program which included its general problem type. The response categories are as follows:

- 0 = ineligible
- 1 = probably ineligible, but problem  
description is not complete enough  
for certainty
- 2 = eligible

In general, most of the problems reported were eligible for coverage, since the HIW programs have quite general coverage within specific problem types. However, there were several reasons why a specific reported problem might not have been eligible:

- (a) A problem was not covered if it was a cosmetic rather than a structural problem. For instance, a minor crack in a plaster wall or in a foundation, which was unsightly but did not affect the structural integrity of the building, would not be covered.

PLUMBING	such as a broken hot-water heater, bathroom fixtures, or leaking water pipes.
ROOF	such as leaks, rotting, sagging rafters, or defective gutters.
HEATING SYSTEM	such as the furnace, boiler, or blower fans.
WALLS, CEILINGS, FLOORS	such as sagging, buckling, rotting beams (for termite damage, category 12 was used).
FOUNDATION OR BASEMENT	such as structural cracks or defects in the chimney, foundation, beams or girders (wet basements were coded in category 11, not here).
ELECTRICAL SYSTEM	such as interior wiring or an overloaded panel box (circuit breakers) (wiring external to the house was not included here but was classified as OTHER in category 13). Fixtures and outdoor lighting were not eligible problems.
MAJOR APPLIANCES	such as range, dishwasher, etc., that came with the house.

The following were not coded as appliances:

intercoms alarm systems exhaust fans sump pumps	} these were coded under OTHER (category 13) as eligible problems.
room air conditioners space heaters humidifiers dehumidifiers	} these were coded under OTHER (category 13) as ineligible problems.
SEPTIC SYSTEM, WATER SUPPLY, SEWERS	
PORCHES, GARAGES	other attached structures.

- 11            WET BASEMENT
- 12            INSECT DAMAGE            all problems involving insect damage were coded here, even if they affected one of the above.
- 13            OTHER                    such as detached buildings, sheds, walks, driveways, pools, patios, etc.

capacity of these systems would not be covered. (Of course, an electrical short circuit or a leaky hot-water heater would be covered.) Repairs to bring the house into compliance with local building codes were not eligible.

- (c) A reported problem was not covered if solving it merely involved normal maintenance. Painting a house, for instance, was not covered.
- (d) A problem was not covered if it resulted from an "Act of God," such as a house fire, a flood, or a tornado. Shingles blowing off in a regular wind storm and a resulting leak would not be excluded under this category.
- (e) Some of the problems described by respondents were not eligible for coverage under the warranty plans being considered; e.g., landscaping, grading of the lot, or repair of a room air conditioner.

### (3) Reason for Exclusion

A one-digit code was used to indicate why problems which were coded as ineligible or probably ineligible had been placed in these categories. If Field 2 was coded with a "2" (i.e., if the problem was ineligible), then the code in Field 3 was "NA" (not applicable). If Field 2 was coded with a "0" or a "1", then Field 3 was assigned one of the following codes:

- 1 = Cosmetic rather than structural problem
- 2 = Upgrading, improvement, or code compliance, rather than repair of defect
- 3 = Normal maintenance, such as painting or replacement of an old and worn-out roof
- 4 = "Acts of God," such as floods, fires, or tornadoes. (This category was used only rarely for very extreme conditions. A wet basement in a heavy rainstorm would not be excluded under this category.)
- 5 = Ineligible problem type

and applying a more stringent definition of eligibility in subsequent analysis.

#### (4) Improvement Code

A one-digit code was used to identify problem descriptions which indicated that the repair also included some type of improvement in terms of the type of materials, extent of work, or capacity of the new replacement equipment.

Problem description coding was carried out by the data processing staff, just prior to data entry.

A second coding effort was required in about 600 cases where respondent neither had the problem repaired nor obtained an estimate of the cost of repair. In this case, a special coding process was established in which an MPR technical consultant reviewed the problem description and estimated the cost of repair. This coding effort took place following data entry, and this information was added to the files during the analysis of the project. A more complete discussion of the way in which this was used to circumvent the problem of missing repair cost data is provided in Appendix E.

#### 6. Sanitizing the Data Files

No data which would identify individual respondents were entered into the computer files for analysis. Following data entry of the interview, all documents containing any reference to the respondent's name or address--such as the Information Sheets, address correction forms, t

12 in both sites. During this time, totals of 1,879 Needs Surveys and 1,814 Demand Surveys were completed. Overall completion rates of 71 percent and 76 percent were achieved for the Needs and Demand Surveys, respectively.

Table I.4 shows the overall field results, by survey and sample type (FHA/non-FHA). A total of 7,735 sample points were assigned to the interviewing staff. Of these, 2,667 (34.4 percent) were determined to be ineligible during the field period. A breakdown of ineligibles by reason is shown in Table I.5. Among the 5,068 potentially eligible respondents, 73 percent resulted in completed interviews. The relatively high total number of completed interviews for the FHA samples were the result of an error in the assignment process during the field period. The additional completed interviews were removed from the analysis files in order to preserve the appropriate weighting of the samples.<sup>1/</sup>

Consistently better results were obtained for the FHA sample. In part, this may have been due to better quality of data in the FHA sample frame. In addition, the cooperation of the FHA sample respondents was better, as reflected in the lower refusal rate. The Demand Survey obtained a higher overall completion rate, in spite of a slightly higher rate of refusals. This was due to much higher rates of wrong telephone numbers and noncontacts on the Needs Survey.

Table I.6 shows a complete breakdown of the non-FHA samples by county.



	A Total Sample (B + C)	B Ineligibles	C Eligibles (D + E + F + G + H)	D Completed Interviews	E Refusals	F Noncontacts	G Wrong Number	H Other (Non- English speaking, disconnected phones, etc.)
FHA	1492	262	1230	975	46	59	108	42
Non-FHA (County)	2507	1099	1408	904	109	110	200	85
TOTAL	3999	1361	2638	1879	155	169	308	127
FHA	1461	320	1141	931	61	38	70	41
Non-FHA (County)	2275	986	1289	910	117	60	119	83
TOTAL	3736	1306	2430	1841	178	98	189	124
Total FHA Samples	2953	582	2371	1906	107	97	178	83
Total Non-FHA Samples	4782	2085	2697	1814	226	170	319	168
GRAND TOTAL	7735	2667	5068	3720	333	267	497	251

## NEEDS

## DEMAND

Reason	FHA	Non-FHA	FHA	Non-FHA
First Owner (New House)	78	338	35	320
Did Not Purchase House in Proper Time Frame	53	183	203	152
Condominium, Cooperative, or Mobile Home	18	75	26	78
Attached Commercial Use	4	43	3	37
Rent Home	33	65	22	73
FHA Mortgage	n.a.	148	n.a.	125
Have Since Sold House	64	90	3	4
More than 4 Family Units	0	4	1	2
Other	12	153	27	195
TOTAL INELIGIBLE	262	1,099	320	986

TABLE I.6

## HIW NON-PHA SURVEY RESULTS BY SURVEY TYPE AND BY COUNTY

## PART A

## NEEDS SURVEY

	A Total Sample (B + C)	B Ineligibles	C Eligibles (D + E + F + G + H)	D Interviews	E Refusals	F Noncontacts	G Wrong Number	H Other	Response Rate (D + C)
Florida	19	0	19	15	0	0	1	3	.79
Tennessee	31	12	19	15	0	0	1	3	.79
Florida	28	8	20	15	0	0	4	1	.75
Maryland	24	5	19	16	1	0	2	0	.84
Georgia	55	13	42	23	8	1	6	4	.55
North Carolina	59	24	35	23	6	3	2	1	.66
Alabama	41	22	19	14	1	0	3	1	.74
South Carolina	57	28	29	22	2	1	3	1	.76
Georgia	54	30	24	15	5	1	2	1	.63

	A Total Sample (B + C)	B Ineligibles	C Eligibles (D + E + F + G + H)	D Interviews	E Refusals	F Noncontacts	G Wrong Number	H Other
Chester, South Carolina	35	13	22	13	0	0	4	5
	53	36	17	11	5	0	0	1
Franklin, Georgia	27	15	12	6	3	0	1	2
	44	32	12	4	5	1	0	2
Grundy, Tennessee	33	9	24	15	1	0	7	1
	24	6	18	15	2	0	1	0
Hamilton, Ohio	30	9	21	15	3	3	0	0
	48	26	22	15	3	2	0	2
Warren, Ohio	28	7	21	16	0	4	1	0
	37	15	22	15	3	0	3	1
Folk, New York	22	5	17	15	1	1	0	0
	28	8	20	15	2	1	0	2
Franklin, Massachusetts	42	20	22	15	2	2	0	3
	33	13	20	15	1	1	2	1
Lawrence, Pennsylvania	22	4	18	17	0	0	1	0

Location	Total Sample (B + C)	B Ineligibles	C Eligibles (D + E + F + G + H)	D Interviews	E Refusals	F Noncontacts	G Wrong Number	H Other
Fairfax, New Jersey	38	14	24	15	3	1	5	0
	34	12	22	17	2	0	3	0
Fairfax, New Jersey	30	6	24	14	3	2	3	2
	24	9	15	15	0	0	0	0
Fairfax, New Jersey	50	17	33	20	3	7	3	0
	55	21	34	15	3	3	9	4
Fairfax, New Jersey	64	25	39	20	1	5	8	5
	63	28	35	20	3	3	6	3
Fairfax, New Jersey	61	41	20	10	0	4	6	0
	62	30	32	22	2	4	4	0
Fairfax, New Jersey	24	6	18	15	1	0	0	2
	27	7	20	15	1	1	2	1
Fairfax, New Jersey	22	5	17	15	0	1	0	1
	63	27	36	16	5	6	9	0
Fairfax, New Jersey	31	14	17	15	1	0	0	1

	A	B	C	D	E	F	G	H	(D ÷ C)
	Total Sample (B + C)	Ineligibles	Eligibles (D + E + H) (F + G + H)	Interviews	Refusals	Noncontacts	Wrong Number	Other	Response Rate
	31	13	18	15	0	0	3	0	.83
Missouri, Kansas									
Missouri	57	37	20	13	0	2	3	2	.65
Wardo, Iowa	29	9	20	16	0	0	4	0	.80
Illinois	31	15	16	15	0	0	1	0	.94
Wasta, Iowa	32	9	23	15	1	3	3	1	.65
Nebraska	61	35	26	15	2	1	6	2	.58
Wales, California	54	21	33	17	0	6	7	3	.52
Wales, California	61	27	34	12	3	3	12	4	.35
California	51	23	28	14	4	3	7	0	.50
Phoenix, Arizona	39	19	20	16	1	1	2	0	.80
Washington	28	6	22	18	2	2	0	0	.82
San Jose, California	31	.29	22	9	2	4	7	0	.41
San Jose, New Mexico	51	24	27	11	1	2	9	4	.41
San Juan, California	65	32	33	17	3	4	7	2	.52
California	39	14	25	16	1	4	1	3	.64

[illegible]

HIW NON-FHA RESULTS BY SURVEY TYPE AND BY COUNTY

PART B

DEMAND SURVEY

	A Total Sample (B + C)	B Ineligibles	C Eligibles (D + E + F + G + H)	D Interviews	E Refusals	F Noncontacts	G Wrong Number	H Other	I Response Rate
Florida	24	2	22	16	2	0	0	4	
Tennessee	35	9	26	15	5	2	1	3	
Florida	28	9	19	14	2	3	0	0	
Maryland	23	4	19	16	2	0	0	1	
Georgia	35	14	21	15	3	1	1	1	
North Carolina	62	24	38	29	5	1	3	0	
Alabama	50	29	21	11	6	0	0	4	
South Carolina	82	23	59	36	8	4	4	7	
Georgia	32	11	21	8	8	0	3	2	
Florida	50	29	21	9	2	2	6	2	



T B (Continued)

	A Total Sample (B + C)	B Ineligibles	C Eligibles (D + E + H + G + H)	D Interviews	E Refusals	F Noncontacts	G Wrong Number	H Other	Response Rate
er, South Carolina	43	26	17	13	1	0	1	2	.
ln, Tennessee	56	29	27	18	5	1	0	3	.
lin, Georgia	25	20	5	1	1	0	3	0	.
y, Tennessee	29	17	12	8	2	0	2	0	.
e, Michigan	30	9	21	15	3	0	1	2	.
and, Michigan	27	5	22	15	2	0	2	3	.
ton, Ohio	25	8	17	15	1	0	1	0	.
gon, Michigan	59	26	33	16	2	2	2	11	.
en, Ohio	20	2	18	15	3	0	0	0	.
te, Ohio	30	14	16	15	0	0	1	0	.
blk, New York	26	7	19	15	2	0	0	2	.
s, New York	33	7	26	18	3	0	0	5	.
lin, Massachusetts	46	27	19	14	1	4	0	0	.

	Total Sample (B + C)	Ineligibles	Eligibles (D + E + F + G + H)	Interviews	Refusals	Noncontacts	Wrong Number	Other
assaic, New Jersey	17	2	15	15	0	0	0	0
zerne, Pennsylvania	43	19	24	18	3	1	1	1
pe May, New Jersey	39	24	15	10	2	1	0	2
ndsor, Vermont	27	8	19	17	2	0	0	0
ltnomah, Oregon	44	14	30	20	1	3	4	2
rrant, Texas	47	20	27	14	5	3	3	2
eces, Texas	27	8	19	15	2	0	2	0
llin, Texas	34	11	23	15	2	3	3	0
. Landry, Louisiana	49	29	20	14	4	0	2	0
ephens, Oklahoma	55	27	28	21	1	0	4	2
ok, Illinois	24	6	22	17	2	0	1	2
ok, Illinois	29	10	19	15	0	0	4	0
Page, Illinois	33	13	20	16	2	1	0	1
dgwick, Kansas	54	31	23	15	1	1	5	1
ne, Wisconsin	29	11	18	15	0	0	3	0

	A Total Sample (B + C)	B Ineligibles	C Eligibles (D + E + F + G + H)	D Interviews	E Refusals	F Noncontacts	G Wrong Number	H Other
	25	7	18	15	0	1	2	0
	42	21	21	15	1	1	4	0
	25	4	21	15	1	1	3	1
	23	7	16	15	1	0	0	0
	29	11	18	15	1	1	1	0
	28	12	16	15	0	0	1	0
	37	12	25	16	1	2	5	1
	47	24	23	16	0	3	4	0
	46	21	25	15	2	3	5	2
	38	15	23	15	2	1	5	0
	33	16	17	15	0	1	1	0
	45	27	18	10	1	1	4	2
	59	57	22	16	2	2	1	1
	31	10	21	15	1	2	2	1
	22	14	18	10	0	0	2	1

[illegible]

industry through discussions with representatives of the major organizations concerned about warranties, the National Home Warranty Association (NHWA) and the National Association of Realtors (NAR). As the research proceeded, this list was checked and supplemented as necessary, by asking representatives of private firms whether they were aware of any other major firms in the industry beyond those on the initial list. Representatives of the additional ten firms identified through this process were interviewed by MPR. These ten firms included all identified companies writing more than 500 inspection and/or warranty contracts per year, and all firms associated with the NHWA or approved by the NAR.

Representatives of firms which appeared to have a business volume of more than 1,000 contracts per year were interviewed in person by MPR senior research personnel.<sup>1/</sup> Smaller firms were interviewed either in person or by telephone, depending on such factors as convenience and whether or not the firm was significantly different from others already interviewed in depth. Table I.7 provides the names of the individuals who were contacted.

The in-person interviews with representatives of private firms covered a prespecified set of interview topics, including descriptive information about the firms' operations, experiences with claims rates and claims.

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<sup>1/</sup> The two exceptions to this general procedure are Rollins Home Care, which has approximately 1,000 policies, and American Home Guard, which has 1,800 policies. Because of a change in the management of the program at Rollins, it was not possible to interview a representative of the company.

# AND GOVERNMENT OFFICIALS CONTACTED DURING THE HIW STUDY

## A. WARRANTY COMPANIES

<u>Company</u>	<u>Individuals Contacted</u>
AMC Home Inspection Service 13 Saratoga Avenue Bound Brook, New Jersey	Kenneth Austin, President
American Home Guard 1001 North Parkway Pidgeon Forge, Tennessee	Douglas Travis, President Arthur Celona, Northeast Regional Representative
American Home Shield Suite 704 1811 Santa Rita Road Pleasanton, California	Bruce Grewell, Senior Vice President Jack Meyer Christine Smith
Certified Home Inspection Program 2000 Century Plaza Columbia, Maryland	Cary Cooper, President Theo Jet, Vice President
Certified Service Systems P.O. Box 2545 Dublin, California	Jerry Silsdorf, President
Electronic Realty Associates, Inc. 8600 West 63rd Street Shawnee Mission, Kansas	Keith Wasser, Vice President
First American Home Protection Insurance Program 3100 Broadway Kansas City, Missouri	Moulton Green, Executive Vice President
Homestead Inspection Warranty Program	LaVella Flud, Director, Plans and Controls

A. WARRANTY COMPANIES (Continued)

<u>Company</u>	<u>Individuals Co</u>
Pacific Cal-West, Inc. 1430 Arroyo Way Walnut Creek, California	Robert Weidmark, P Larry Brooding, Vi Ray Adams Kent Stewart
Rollins Home Care P. O. Box 647 Atlanta, Georgia	James C. Roddey, V
St. Paul Home Protection Program 385 Washington Street St. Paul, Minnesota	Robert L. Ramstead New Products Lee King Dale Acton
Soundhome Assurance Program 1180 Raymond Boulevard Newark, New Jersey	Robert Franke, Man President Ray Caldwell

B. REAL ESTATE INDUSTRY REPRESENTATIVES

California

Don Brewer, Realtor  
 Bob Clark, McGarvey-Clark Realty  
 Robert Guggenheim, Realtor  
 Joe Henry, Chairman of the California Association of Realto  
 Warranty Committee  
 Art Leitch, Art Leitch Realtors; former President of the Na  
 Association of Realtors  
 Thomas Murphy, Assistant Executive Officer, Contra Costa Bo  
 of Realtors  
 Gordon Nicholson, Contra Costa Board of Realtors  
 Lyles Pember, Bonanza Realty  
 Ronald Strayer, Realtor  
 Howard Summerlin, Allied Brothers

## Florida

Marlene Alexander, Realtor

Will Bowles, ERA Realtor

Margaret Hanley, Administrative Vice President, Fort Lauderdale  
Area Board of Realtors

Elizabeth Ostroff, Public Relations Director, Miami Board  
of Realtors

Ed Robinson, Chairman, Home Warranty Committee, Orlando Winter  
Park Board of Realtors

## Illinois

Lee Pohl, Director Member Services, National Association of  
Realtors, Chicago

## Maryland

Richard Dugan, Administrative Assistant, Montgomery County Board  
of Realtors

Dean Noah, Manager, Colquitt-Carruthers, Bethesda

Joe Scoville, Manager, Hugh T. Reck Realtors

## New Jersey

Dorothy Hunt, Realtor

Georgia McMullen, Office Manager, Board of Realtors of the  
Oranges and Maplewood

## New York

Harold Lyda, Editor, Real Estate Insiders Newsletter

## Ohio

Almon Smith, Executive Vice President, Cleveland Area Board  
of Realtors

Alice Young, Director of Administration, Cincinnati Board  
of Realtors



Oklahoma

Jim Campbell, ERA Realtor  
Theatus Greeson, Executive Vice President, Oklahoma City  
Board of Realtors  
Rex Montgomery, Realtor

C. HUD OFFICIALS INTERVIEWED FOR THE REVIEW OF SECTION 518

Washington, D.C.

Gene Buehler, Budget Division  
Milton Francis, Deputy Director, Office of Technical Support  
(Acting)  
Lawrence Gary, Diversified Payments Division  
William Rolfe, Director, Single Family Mortgage Insurance  
Division  
Robert Sacrey, Management Information Systems Division  
George Thompson, Management Division

Regional Offices

Boston

Vincent Chiricosta, Kevin Earls, Susan Erickson, William F.  
Daniel Langden

Chicago

Kay Bond, Thomas Briatus, Gerald Johnson, Jean Meger, Charl  
Moskop, Martin Rogan, Joseph Solan, Dudley Turner, William  
Venhuizen, John Warner

Newark

Thomas Dulsch, Donald Grenada, Joseph McKenna

New York

Leonard Duaney, Greville Harvey, John Kudelha, Arthur Shatl  
James Sullivan

Delaware

Robert Hubbard  
Commissioner of Licenses and Inspections  
1213 Walnut Street  
Wilmington, Delaware

Michigan

Elmer Takasc  
Code Enforcement Supervisor  
City Hall  
1101 Saginaw Street  
Flint, Michigan

Al Thomas  
Code Coordinator  
Department of Building and Safety Engineering  
Room 401, City and County Building  
Detroit, Michigan

Minnesota

Robert Lines  
Coordinator, Truth in Housing Inspection Program  
Minneapolis, Minnesota

Missouri

Margo Decker  
Office of Planning  
City Hall  
6801 Delmar Boulevard  
University City, Missouri

Albert J. Nerviani  
Housing Section  
Building Division  
1015 Locust Street  
St. Louis, Missouri

to determine their opinions of the advantages and disadvantages of the two basic types of warranty plan. MPR selected five states, distributed across the country, in which it was known that one or more home warranty companies were active. These states are California, Oklahoma, Florida, Maryland and New Jersey. In each state, MPR contacted an executive officer from a county board of realtors where one or more warranty programs were likely to be active.<sup>1/</sup> The county board officer was asked about the approximate volume of warranty coverage in that county, the advantages and disadvantages of the two types of warranty programs from the perspective of the typical broker in that area, the names of warranty companies currently available in that area, and the names of several real estate agents who could be contacted for opinions, preferably some favoring warranties and some opposing the concept. Representatives of the warranty companies were also asked to identify real estate agents with whom they did business in these same counties. In each county, MPR attempted to contact two of the recommended agents and was successful in all cases except for the New Jersey county.<sup>2/</sup>

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<sup>1/</sup>The source of information on real estate boards was Who's Who - 1976: A Directory of Local Board and State Association Officers. Chicago, Illinois: National Association of Realtors.

<sup>2/</sup>The counties in which a board officer was contacted and at least one real estate broker interviewed are listed in Table D.8 together with the names and titles of the individuals concerned. In some counties, board officials were contacted but realtors were not, either because they were unavailable when MPR called or because there appeared to be little or no activity

program began with a review of the relevant sections of the National Housing Act to determine the basic features of the program. Following this review, meetings were held in Washington with HUD executives to obtain details about the program and its operations.<sup>1/</sup> On the basis of these meetings and following a review of the manual describing the procedures stipulated in Section 518 (HUD Manual 4070.1), a detailed set of research questions was prepared.

The research then proceeded in two ways. First, centrally available statistics and information about the operations of the Section 518 program were obtained by letter and/or telephone from HUD officials. Second, an MPR Cost Analyst conducted site visits to four HUD area offices--Boston, Chicago, New York, and Newark--to obtain information about the way in which the program was being administered in the field. The four area offices selected have handled relatively large volumes of Section 518 claims. Boston has the largest recent volume; Chicago has the largest claims volume to date. Together, the four offices have received almost 30 percent of the nationwide claims to date. The examination of the costs associated with processing Section 518 claims (presented in Appendix G) was conducted on the basis of the information obtained from these sources.

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<sup>1/</sup>Table I.7 presents the names and titles of the HUD officials contacted during the review of Section 518.

supplied an initial list of six locations believed to have such programs. A literature search, including newspaper articles, and conversations with representatives from the International City Management Association resulted in the addition of two cities to the list. An official in the mayor's office or, if known, the director of the program in each of the eight sites was initially contacted by telephone and told about the purposes of the study. This official was asked to identify the appropriate contact within the local administration. The person responsible for the program was asked to identify similar programs in other cities. No new programs were identified through this inquiry.

Following these introductory contacts by telephone, letters outlining the topics to be discussed in a subsequent telephone conversation were sent to the appropriate representative at each location. During the follow-up telephone conversation it was found that two of the selected sites had regular code enforcement programs rather than presale inspection programs. These two representatives were not interviewed further. The names, titles, and locations of those contacted are included in Table I.

Following the conversations with public officials concerning presale inspection programs, MPR interviewed real estate agents in these communities to determine the impact of the local programs on sales. Executive officers of local boards of realtors were asked to identify at least two real estate agents active in the community. One or two of the







ASSISTANT SECRETARY FOR  
POLICY DEVELOPMENT AND RESEARCH

February 3, 1977

IN REPLY

Dear Registrar of Deeds:

The Department of Housing and Urban Development (HUD) conducting a study of the need and demand for an inspection and warranty in the sale of single family homes. The study has been mandated by the Congress, to whom our report will be directed. HUD has contracted with Mathematica Policy Research (MPR), a private research and consulting firm, to conduct the study.

Much of the data to be used in the study will come from survey of owners of private residences who have purchased homes within the last two years. These owners will be selected from property transfer records in a sample of 60 counties throughout the country. Your county is one of the 60 selected to participate in this study.

In order to locate homeowners in your county, a representative of MPR will soon contact your office concerning the content accessibility of property transfer records. Shortly thereafter an MPR representative will visit your office (or that office where the records are most easily accessible) to collect the needed information. The time required of you and your staff will be minimal.

The success of this study depends greatly on the cooperation of county personnel in providing us with information on the structure of your property files. Given the national importance of this study, we would appreciate your cooperating with MPR in this effort and would like to thank you in advance for any assistance you can provide.

Sincerely,



Prepared by: \_\_\_\_\_

MPR Contact

County: \_\_\_\_\_ State: \_\_\_\_\_

Letter Mailed to: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Check office which provided the information given below:

Telephone number, county registrar's office: ( \_\_\_\_\_ )  
area code

Other offices contacted while tracing county property records:

office	telephone number	name of contact
--------	------------------	-----------------

office	telephone number	name of contact
--------	------------------	-----------------

office	telephone number	name of contact
--------	------------------	-----------------

Introduction:

2. Determine how many residential property transfers take place per year county. (If contact does not know, ask for total transfers; then ask for estimate of percent which are residential.)

3. Determine how property records are organized. (Check all that apply.)

- ☐ a. Deeds filed by date (or by serial number roughly corresponding to date)
  - ☐ b. Indexed by grantor/grantee
  - ☐ c. Other (explain) \_\_\_\_\_
- 

4. Determine how soon deed registry, grantor/grantee index, and tax files available after deeds are executed.

- a. Buyer's name
- b. Buyer's address
- c. Buyer's telephone number
- d. Seller's name
- e. Records accessible by date
- f. Property designation, e.g., residential, commercial, vacant property
- g. Sales price of property (indicate if approximate or actual)


If the files are not easily accessible or if some of the requirements are not met, i.e., chronological access and designation of property as residential, determine what other office has this information, e.g., county tax assessor's office. Obtain address and telephone number if possible.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone: \_\_\_\_\_

Name, telephone number and address of person sample selector should contact.

Name

telephone no.

ext.

Building

room no.

9. Determine if there is any time which is particularly inconvenient for records. Specifically, ask whether office is closed February 21 (Washington Birthday).
10. Determine if there are any unfavorable weather or travel conditions
11. Additional comments:

County: \_\_\_\_\_ I.D. No.: \_\_\_\_\_

2

3

## I. MANDATORY DATA

Buyer's (Grantee's) Name

Street Address

City

State

Zip Code

(May be obtained  
at MPR)

Date of Sale:

Month

4

Day

5

Year

6

## II. DESIRED ADDITIONAL DATA

Buyer's (Grantee's) Phone Number

Seller's (Grantor's) Name

Sales Price: \$

7

(Not assessed value)

### Property Classification:

- 1 - Residential
- 2 - Farm
- 3 - Vacant Land
- 4 - Commercial
- 5 - Industrial
- 6 - Apartment
- 7 - Condominium
- 8 - Vacation/Second home
- 9 - Other (specify):



nty: \_\_\_\_\_ Name - MPR  
Sample Selector: \_\_\_\_\_

### Description of File Structure

- A. ☐ Includes residential and non-residential; property is classified by type.
- ☐ Includes residential and non-residential; property is not classified by type.
- ☐ Includes only residential properties
- B. ☐ Files organized chronologically
- ☐ Files not organized chronologically

Further description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Number of property  
transfers in March, 1975:

Number of property transfers in  
January, 1977

\_\_\_\_\_

The number given above refers  
to: (check one)

- ☐ Number of residential  
property transfers
- ☐ Number of total  
property transfers

\_\_\_\_\_

The number given above refers to:  
(check one)

- ☐ Number of residential property  
transfers
- ☐ Number of total property trans-  
fers

- ☐ Buyer's (Grantee's) Name  
☐ Buyer's (Grantee's) Address  
☐ Buyer's (Grantee's) Phone Number  
☐ Seller's (Grantor's) Name  
☐ Date of Sale  
☐ Sales Price  
☐ Property Classification

4. Source(s) of additional information:

---

---

---

5. Random start number and sampling interval (obtain from MPR Princeton - 609-799-2600).

March 1975

January 1977

Random Start Number

---

Sampling Interval

---

---

---

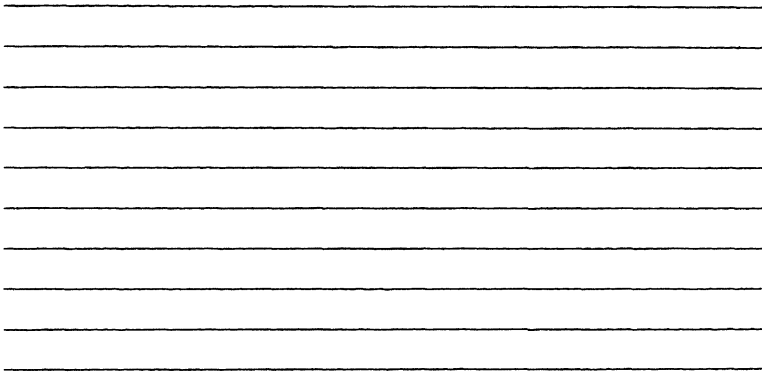
---

6. Number of Information Sheets completed: (target: 60 or more - March, 1975  
60 or more - Jan., 1977)

March, 1975

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112

113

113

---

Telephone Number

- ☐ No Listing
- ☐ Unlisted Number
- ☐ Listing at different address

Name

I.D. Number

1:

Street Address

Telephone Number

City

State

Zip Code

2:

Street Address

Telephone Number

City

State

Zip Code

3:

Street Address

Telephone Number

City

State

Zip Code

s:

March 16, 1977

Dear Homeowner:

The United States Department of Housing and Urban Development is conducting a national study of programs designed to protect individuals who purchase existing homes against any major defects which may require costly repairs. The study is designed to aid the government in determining the public interest in new policies to protect homeowners. As part of the study, the Department has contracted with Mathematica Policy Research to conduct a nationwide survey of recent home buyers. Your home has been selected at random as one of 1,800 homes nationwide to be part of this study.

In the next few weeks, we plan to have a trained interviewer from our staff telephone you to conduct this brief interview over the phone. The interviewer will be asking for your opinion on a number of alternative programs to protect homeowners. In order to complete our interviews, would you please complete and return the enclosed postcard.

Your participation in this study is entirely voluntary and any information you provide will be held strictly confidential and will not be associated with your name in any way. The data collected on this survey will be used in the preparation of an important report to be presented to Congress in June. I therefore hope that you will participate when you are called.

Thank you,

A handwritten signature in dark ink, appearing to read "J. Alan Brewster", with a long horizontal flourish extending to the right.

J. Alan Brewster  
Project Director



# MATHEMATICA POLICY RESEARCH

March 16, 1977

Dear Homeowner:

The United States Department of Housing and Urban Development is conducting a national study of the types of problems homeowners experience shortly after purchasing their homes. The study is designed to aid the government in determining the need for and desirability of new policies to protect the home buyer. As part of the study, the Department has contracted with Mathematica Policy Research to conduct a nationwide survey of recent home buyers. Your house has been selected at random as one of 1,800 homes nationwide to be part of this study.

In the next few weeks, we plan to have a trained interviewer from our staff telephone you to conduct this brief interview over the phone. The interviewer will be asking you questions about repair problems you may have experienced with your house since you bought it, and the cost of any such repairs. In order to complete our interview, would you please complete and return the enclosed postcard.

Your participation in this study is entirely voluntary and any information you provide will be held strictly confidential and will not be associated with your name in any way. The data collected on this survey will be used in the preparation of an important report to be presented to Congress in June. I therefore hope that you will participate when you are called.

E REACHED FOR THIS HOUSING STUDY AT THE FOLLOWING TELEPHONE NUMB

(AREA CODE)

(TELEPHONE NUMBER)

(STAPLE)

**FIRST CLASS**

Permit No. 727

Princeton, N.J.

08540

**BUSINESS REPLY MAIL**

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY

LOIS BLANCHARD  
SURVEY DIVISION  
MATHEMATICA POLICY RESEARCH  
P.O. BOX 2393  
PRINCETON, NEW JERSEY 08540



March 7, 1977

IN REPLY RE

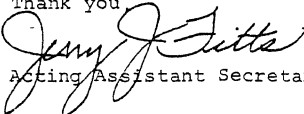
Dear Homeowner:

The Department of Housing and Urban Development is conducting a national study of programs designed to protect individuals who purchase existing houses against major defects which may require costly repairs. The study is designed to aid the government in determining the public interest in new policies to protect homeowners. As part of the study, the Department has contracted with Mathematica Policy Research, Inc. of Princeton, New Jersey to conduct a nationwide survey of recent home buyers. Your home has been selected at random as one of the Nation's 1,800 homes to be part of this study.

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Your participation in this study is entirely voluntary and any information you provide will be held strictly confidential and will not be associated with your name in any way. The data collected on this survey will be used in the preparation of an important report to be presented to Congress in June. I, therefore, hope that you will participate when you are called.

Thank you,



Acting Assistant Secretary

March 7, 1977

IN REPLY REF

Dear Homeowner:

The Department of Housing and Urban Development is conducting a national study of the types of problems homeowners experience shortly after purchasing their homes. The study is designed to aid the government in determining the need for and desirability of new policies to protect the home buyer. As part of the study, the Department has contracted with Mathematica Policy Research, Inc. of Princeton, New Jersey to conduct a nationwide survey of recent home buyers. Your house has been selected at random as one of 1,800 homes nationwide to be part of this study.

In the next few weeks, a trained interviewer from the staff of Mathematica Policy Research will telephone you to conduct this brief interview over the phone. The interviewer will be asking questions about repair problems you may have experienced with your house since you bought it, and the cost of any such repairs.

Your participation in this study is entirely voluntary and any information you provide will be held strictly confidential and will not be associated with your name in any way. The data collected on this survey will be used in the preparation of an important report to be presented to Congress in June. I, therefore, hope that you will participate when you are called.

Thank you,

*[Handwritten signature]*



## NEEDS SURVEY

Hello, my name is \_\_\_\_\_ and I'm calling from  
Mathematica Policy Research in Princeton, New Jersey, about a  
letter that was sent to you from the Department of Housing and  
Urban Development concerning a study we're doing on houses that  
were bought in your county in 1975.

May I speak to (NAME(S) OF HOMEOWNER(S))?

IF NOT HOME, SCHEDULE CALLBACK.

IF NO SUCH NAME AT THIS NUMBER, END INTERVIEW.

<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	1 AM	2020
<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	2 PM	2024
TIME BEGAN						

WHEN YOU GET HOMEOWNER, REPEAT INTRODUCTION.

INTERVIEWER: CIRCLE ONE:

R REPORTED RECEIVING LETTER. . . . . 1 2020

R REPORTED NOT RECEIVING LETTER. . . . 2

R DID NOT MENTION LETTER . . . . . 3

THEN SAY:

I am about to ask you some questions to help complete the  
study required by the Housing Authorization Act of 1976.  
The data collected will be used by the Department of Housing  
and Urban Development and Mathematica Policy Research to  
complete the study. This information will be held strictly  
confidential. The information you furnish will not be disclosed

RENT . \*TERMINATE\* . . . .

IF RENT, END INTERVIEW BY SAYING:

In this survey we are only  
interviewing homeowners. Thank  
you for your time.

1b. Is this a condominium or cooperative, or a mobile home?

YES . . \*TERMINATE\* . . . .

NO. . . . .

IF YES, END INTERVIEW BY SAYING:

In this survey we are not interviewing owners  
of cooperatives or condominiums, or mobile homes.  
Thank you for your time.

1c. Does this house have an attached commercial  
establishment?

YES . . \*TERMINATE\* . . . .

NO. . . . .

IF YES, END INTERVIEW BY SAYING:

In this survey, we are interviewing owners  
of only residential dwellings. Thank you  
for your time.

2. Are you the first owner of this  
house?

YES . . \*TERMINATE\* . . . .

NO . . . . .

NO. . . \*TERMINATE\* . . . .

IF NO, END INTERVIEW BY SAYING:

In this survey, we are only interviewing people who bought their homes between January and April 1975. Thank you for your time.

4. ASK OF COUNTY RECORDS SAMPLE  
ONLY. CIRCLE NA IF FHA SAMPLE:

Do you have an FHA mortgage?

YES . . \*TERMINATE\* . . . .

NO . . . . .

FHA SAMPLE . . . . . N

IF YES, END INTERVIEW BY SAYING:

In this survey, we are not interviewing people with FHA mortgages. Thank you for your time.

5. Is this a single family house?

YES . . \*GO TO Q.8\* . . . .

NO . . . . .

6. Is it a two family, three family,  
or four family house, or is it  
for more than four families?

2 FAMILY . .  
. . . . \*GO TO Q.8\* . . . .

3 FAMILY . .  
. . . . \*GO TO Q.8\* . . . .

NO . . . . .

IF YES, END INTERVIEW BY SAYING:  
In this survey we are interviewing  
only people who own smaller houses.  
Thank you for your time.

8. When there are repairs to be made around the house, who are all the people in the household who would know about what has to be done and how much it costs?

R NAMED SELF . . .  
. . . . \*GO TO Q.10\* . . . 1 2046  
R NAMED OTHERS ONLY . . . . 2

9. For the remaining questions I'd like to speak to (that person/one of those people).

IF NOT HOME, SCHEDULE CALL BACK.

REPEAT INTRODUCTION AND CONFIDENTIALITY  
STATEMENT WHEN YOU GET CORRECT  
RESPONDENT. THAN ASK Q.10.

10. Before you bought this house, did you hire someone to examine the condition of the house, to see whether the equipment was in working order or whether any parts of the house were unsound?

YES . . . . . 1 2048  
NO . . \*GO TO Q.12\* . . . 0

over \$50 but under  
\$100, . . . . .

or was it \$100 or more.

12. Before you moved in, was the house  
vacant for any period of time  
longer than 2 weeks?

YES . . . . .

NO . . \*GO TO Q.14\*

13. How long altogether was it vacant  
before you moved in?

--	--

WEEKS . . . . .

--	--

MONTHS . . . . .

order or because parts of the house have become unsound. The questions I'm going to be asking now are about these kinds of problems, not about repairs, changes, or modernizations you might want to have done.

Were there any repairs or replacements which you had the previous owner make before you bought the house, which would have cost you at least \$50 each if you had had to pay for them?

YES . . . . .

NO. . . \*GO TO Q.17\*. . . . .

- a. the plumbing? . . . . . 1
- b. the roof? . . . . . 1
- c. the heating or  
air conditioning? . . . 1
- d. the walls, ceiling,  
or floors? . . . . . 1
- e. the foundation or  
basement? . . . . . 1
- f. the electrical  
system? . . . . . 1
- g. major appliances? . . 1
- h. the septic system,  
water supply, or  
sewers? . . . . . 1
- i. porches or detached  
buildings such as  
the garage? . . . . . 1
- j. anything else I  
haven't mentioned? . . 1  
(SPECIFY)

---

--	--



16a.

\*GO TO Q.18\*

---

17.

Now I'd like to ask about the same kinds of problems that may have developed in your house since you boug

with (TYPE)  
which would  
cost over \$50  
to repair?

problem  
had wh  
cost o  
each t

	NO	YES	IF 0, GO TO Q.18 NEXT TYPE.
a. The plumbing, such as a broken hot water heater, bathroom fixtures, or leaking water pipes?	0	1	<input type="checkbox"/>
b. The roof, such as leaks, sagging, or defective gutters?	0	1	<input type="checkbox"/>
c. The heating or central air conditioning system, such as the furnace, boiler or blower fans, or compressor?	0	1	<input type="checkbox"/>
d. The walls, ceiling, or floors, such as sagging, buckling, rotting beams or termite damage?	0	1	<input type="checkbox"/>
e. The foundation or basement, such as structural cracks or such as defects in the chimney, foundation, beams or girders?	0	1	<input type="checkbox"/>
f. The electrical system, such as interior wiring or an overloaded panel box (circuit breakers)?	0	1	<input type="checkbox"/>
g. Any major appliances that came with the house?	0	1	<input type="checkbox"/>
h. The septic system, water supply, or sewers?	0	1	<input type="checkbox"/>
i. Porches or detached buildings, such as the garage?	0	1	<input type="checkbox"/>
j. Anything else I haven't mentioned? (SPECIFY)	0	1	<input type="checkbox"/>

IF ONLY 1  
Did this p  
over \$100

\_\_\_\_ ☐ ☐ \*

TOTAL

\$100  
PROBLEMS

P. 40 . . . . .  
1-6 PROBLEMS OVER \$100  
MENTIONED . . .  
. . . . \*GO TO Q.23\* . . .

MORE THAN 6 PROBLEMS  
OVER \$100 . . . . .

22. You have mentioned \_\_\_\_\_ problems  
altogether, which cost over \$100  
each. Now I'd like to ask you  
about the first six of these  
problems in the order that they  
occurred after you bought your house.

22a. \*GO TO Q.24\*

---

23. You have mentioned \_\_\_\_\_ problem(s)  
altogether, which cost over \$100 each.  
Now I'd like to ask about (that problem/  
each one of these problems, in the order  
that they occurred after you bought your  
house).

MATERIALS, AREA COVERED, AND AGE OF  
EQUIPMENT.


25. About how long had you owned your house before this problem first occurred?

READ CATEGORIES IF DON'T KNOW OR IF  
RESPONDENT NAMES A DATE.

WITHIN FIRST MONTH. . . . .	1
2-3 MONTHS. . . . .	2
4-6 MONTHS. . . . .	5
7-12 MONTHS . . . . .	9
13-24 MONTHS. . . . .	18
25 MONTHS OR MORE . . . . .	24

26. Were you aware of the problem or aware that this might become a problem before you bought your house?

pointed out by the  
previous owner, . . . . . 1 3

pointed out by the  
real estate agent, . . . . . 2

pointed out by an  
inspector, . . . . . 3

pointed out by a friend,. . . 4

or was it discovered  
by you or a member of  
your family? . . . . . 5

OTHER (SPECIFY) . . . . . 99

---

--	--

28. Did the problem first occur  
during unusual conditions such  
as locally heavy rains, extremes  
of temperature, windstorms,  
earthquakes, or some other  
unusual condition?

YES . . . . . 1 3

NO . . . . . 0

29. Has (PROBLEM) been repaired or  
replaced?

YES . . \*GO TO Q.36\* . . . 1 3

NO . . . . . 0

or replaced?

YES . . . . .

NO . . \*GO TO Q.43\* . . .

31. Did you get more than one estimate?

YES . . . . .

NO . . \*GO TO Q.33\* . . .

32. What was the highest estimate and  
the lowest estimate?

\$ 

--	--	--	--	--

  
HIGHEST

\$ 

--	--	--	--	--

  
LOWEST

32a. \*GO TO Q.34\*.

---

33. What was the estimate?

\$ 

--	--	--	--	--

34. Did (this/the lowest) estimate  
include any additional maintenance  
work or remodelling beyond what  
had to be done to take care of  
the problem?

YES . . . . .

NO . . \*GO TO Q.43\* . . .

About how much of the estimate of  
\$ \_\_\_\_\_ was just for this  
problem?

1 . . . . . \$ 

--	--	--	--

\* 30  
30

OR

2 . . . . . 

--	--

 PERCENT

\* 30

35a. \*GO TO Q.43\*.

---

36. What was the total cost of the  
repair, including parts and  
labor?

\$ 

--	--	--	--	--

30

DON'T KNOW, CAN'T  
ESTIMATE . .

. . . . \*GO TO Q.39\*. . . . DK

37. Did this cost include any additional  
maintenance work or remodelling beyond  
what had to be done to take care of the  
problem?

YES . . . . . 1

30

NO . . \*GO TO Q.41\*. . . . 0

38. About how much of this cost of  
\$(COST FROM Q. 36) was just for  
this problem?

\$ 

--	--	--	--

\* 3  
3

1 . . . . . \*GO TO Q.41\*

OR

--	--

40. How many total hours did they work  
on the job?

PROBE FOR HOURS EACH WORKED AND  
ENTER TOTAL.

--	--	--

41. Was any of the repair work on this  
problem done without charge, by  
yourself, your relatives or your  
friends?

YES . . . . . 1

NO . . \*GO TO Q.43\*. . . . 0

42. About how many total unpaid hours  
did you or any friends or relatives  
put in on this job?

--	--	--

42a. About how much money do you think you  
saved by this unpaid work?

\$

--	--	--	--

42b. FOR OFFICE USE ONLY:

ESTIMATED REPAIR COST \$

--	--	--	--

43. INTERVIEWER: IS THERE A SECOND \$100  
PROBLEM? (SEE Q.20)

YES . . . . . 1

NO. . . \*GO TO Q.144,p.45\*0



PROBE FOR DETAILS ON SIZE (CAPACITY),  
MATERIALS, AREA COVERED, AND AGE OF  
EQUIPMENT.

--	--

310

--	--

310

--	--

310

--	--

310

--	--

310

READ CATEGORIES IF DON'T KNOW, OR  
IF RESPONDENT NAMES A DATE.

WITHIN FIRST MONTH. . . . .

2-3 MONTHS. . . . .

4-6 MONTHS. . . . .

7-12 MONTHS . . . . .

13-24 MONTHS. . . . .

25 MONTHS OR MORE . . . . .

46. Were you aware of the problem or  
aware that this might become a  
problem before you bought your  
house?

YES . . . . .

NO. . . \*GO TO Q.48\*. . . . .

pointed out by the  
previous owner, . . . . . 1

pointed out by the  
real estate agent, . . . . . 2

pointed out by an  
inspector, . . . . . 3

pointed out by a friend, . . . 4

or was it discovered  
by you or a member of  
your family? . . . . . 5

OTHER (SPECIFY) . . . . . 99

---

--	--

48. Did the problem first occur  
during unusual conditions such  
as locally heavy rains, extremes  
of temperature, windstorms,  
earthquakes, or some other  
unusual condition?

YES . . . . . 1

NO . . . . . 0

49. Has (PROBLEM) been repaired or  
replaced?

YES . . \*GO TO Q.56\* . . . 1

NO . . . . . 0

(PROBLEM) repaired or replaced?

YES . . . . .

NO . . \*GO TO Q.63\* . . .

51. Did you get more than one estimate?

YES . . . . .

NO . . \*GO TO Q.53\* . . .

52. What was the highest estimate and  
the lowest estimate?

\$ 

--	--	--	--	--

  
HIGHEST

\$ 

--	--	--	--	--

  
LOWEST

52a. \*GO TO Q.54\*

---

53. What was the estimate?

\$ 

--	--	--	--	--

54. Did (this/the lowest) estimate  
include any additional maintenance  
work or remodelling beyond what  
had to be done to take care of  
the problem?

YES . . . . .

NO . . \*GO TO Q.63\* . . .

About how much of the estimate of  
\$ \_\_\_\_\_ was just for this  
problem?

1 . . . . . \$ 

--	--	--	--

\* 314

314

OR

2 . . . . . 

--	--

 PERCENT

315

55a. \*GO TO Q.63\*.

---

56. What was the total cost of the  
repair, including parts and  
labor?

\$ 

--	--	--	--	--

315

DON'T KNOW, CAN'T  
ESTIMATE . .

. . . . \*GO TO Q.59\* . . . DK

57. Did this cost include any additional  
maintenance work or remodelling beyond  
what had to be done to take care of the  
problem?

YES . . . . . 1

315

NO . . \*GO TO Q.61\* . . . 0

58. About how much of this cost of  
\$(COST FROM Q.56) was just for  
this problem?

1 . . . . . \$ 

--	--	--	--

 \*GO TO Q.61\*

\* 31

31

OR

--	--

60. How many total hours did they work on the job?

PROBE FOR HOURS EACH WORKED AND  
ENTER TOTAL.

--	--	--

61. Was any of the repair work on this problem done without charge, by yourself, your relatives or your friends?

YES . . . . . 1

NO . . \*GO TO Q.63\* . . . 0

62. About how many total unpaid hours did you or any friends or relatives put in on this job?

--	--	--

62a. About how much money do you think you saved by this unpaid work?

\$

--	--	--	--

62b. FOR OFFICE USE ONLY:

ESTIMATED REPAIR COST

\$

--	--	--	--

63. INTERVIEWER: IS THERE A THIRD \$100 PROBLEM? (SEE Q.20)

YES . . . . . 1

NO . . \*GO TO Q.144

PROBE FOR DETAILS ON SIZE (CAPACITY),  
MATERIALS, AREA COVERED, AND AGE OF  
EQUIPMENT.

--	--

4015

--	--

4017

--	--

4019

--	--

4021

--	--

4023

60. How many total hours did they work  
on the job?

PROBE FOR HOURS EACH WORKED AND  
ENTER TOTAL.

--	--	--	--

61. Was any of the repair work on this  
problem done without charge, by  
yourself, your relatives or your friends?

YES . . . . .

NO . . \*GO TO Q.63\* . . .

62. About how many total unpaid hours  
did you or any friends or relatives  
put in on this job?

--	--	--	--

62a. About how much money do you think you  
saved by this unpaid work?

\$ 

--	--	--	--

62b. FOR OFFICE USE ONLY:

ESTIMATED REPAIR COST

\$ 

--	--	--	--

63. INTERVIEWER: IS THERE A THIRD \$100  
PROBLEM? (SEE Q.20)

YES . . . . .

NO . . \*GO TO Q.144,



PROBE FOR DETAILS ON SIZE (CAPACITY),  
MATERIALS, AREA COVERED, AND AGE OF  
EQUIPMENT.

		401
		401
		401
		402
		402

READ CATEGORIES IF DON'T KNOW, OR IF  
RESPONDENT NAMES A DATE.

WITHIN FIRST MONTH	. . . . 1
2-3 MONTHS	. . . . . 2
4-6 MONTHS	. . . . . 5
7-12 MONTHS	. . . . . 9
13-24 MONTHS	. . . . . 18
25 MONTHS OR MORE	. . . . 24

66. Were you aware of the problem or  
aware that this might become a  
problem before you bought your  
house?

YES	. . . . . 1
NO	. . *GO TO Q.68* . . . 0

pointed out by the previous owner, . . . . .	1	402
pointed out by the real estate agent, . . . . .	2	
pointed out by an inspector, . . . . .	3	
pointed out by a friend,. . . . .	4	
or was it discovered by you or a member of your family? . . . . .	5	
OTHER (SPECIFY) . . . . .	99	

---

--	--

68. Did the problem first occur during unusual conditions such as locally heavy rains, extremes of temperature, windstorms, earthquakes, or some other unusual condition?

YES . . . . .	1	403
NO . . . . .	0	

69. Has (PROBLEM) been repaired or replaced?

YES . . *GO TO Q.76* . . . . .	1	403
NO . . . . .	0	

YES . . . . . 1

NO . . \*GO TO Q.83\* . . . 0

71. Did you get more than one estimate?

YES . . . . . 1

NO . . \*GO TO Q.73\* . . . 0

72. What was the highest estimate and  
the lowest estimate?

\$ 

--	--	--	--	--

 HIGHEST      \$ 

--	--	--	--	--

 LOWEST

72a. \*GO TO Q.74\*.

---

73. What was the estimate?

\$ 

--	--	--	--	--

74. Did (this/the lowest) estimate  
include any additional maintenance  
work or remodelling beyond what had  
to be done to take care of the  
problem?

YES . . . . . 1

NO . . \*GO TO Q.83\* . . . 0

75. ASK ABOUT LOWEST ESTIMATE (Q.72)  
IF MORE THAN ONE:

About how much of the estimate of  
\$ \_\_\_\_\_ was just for this  
problem?

1 . . . . . \$ 

--	--	--	--

\*4058  
4060

OR

2 . . . . . 

--	--

 PERCENT

4064

75a. \*GO TO Q.83\*.

---

76. What was the total cost of the  
repair, including parts and  
labor?

\$ 

--	--	--	--	--

4066

DON'T KNOW, CAN'T  
ESTIMATE . .

. . . . \*GO TO Q.79\*. . . . DK

77. Did this cost include any additional  
maintenance work or remodelling beyond  
what had to be done to take care of  
the problem?

YES . . . . . 1

4071

NO . . \*GO TO Q.81\*. . . . 0

78. About how much of this cost of  
\$(COST FROM Q.76) was just for  
this problem?

--	--	--	--

\*4072

80. How many total hours did they work  
on the job?

PROBE FOR HOURS EACH WORKED AND  
ENTER TOTAL.

--	--	--

81. Was any of the repair work done on this  
problem without charge, by yourself,  
your relatives, or your friends?

YES . . . . . 1

NO . . \*GO TO Q.83\*. . . . 0

82. About how many total unpaid hours  
did you or any friends or relatives  
put in on this job?

--	--	--

82a. About how much money do you think you  
saved by this unpaid work?

\$ 

--	--	--	--

82b. FOR OFFICE USE ONLY:

ESTIMATED REPAIR COST

\$ 

--	--	--	--

83. INTERVIEWER: IS THERE A FOURTH  
\$100 PROBLEM? (SEE Q.20)

YES . . . . . 1

[illegible]

--	--

4109

IF RESPONDENT NAMES A DATE.

WITHIN FIRST MONTH . . . .	1
2-3 MONTHS . . . . .	2
4-6 MONTHS . . . . .	5
7-12 MONTHS . . . . .	9
13-24 MONTHS . . . . .	18
25 MONTHS OR MORE . . . .	24

86. Were you aware of the problem or  
aware that this might become a  
problem before you bought your  
house?

YES . . . . .	1
NO . . *GO TO Q.88* . . . .	0



the problem? Was it . . .

pointed out by the  
previous owner, . . . . . 1 411

pointed out by the  
real estate agent,. . . . . 2

pointed out by an  
inspector, . . . . . 3

pointed out by a friend,. . 4

or was it discovered  
by you or a member of  
your family? . . . . . 5

OTHER (SPECIFY) . . . . . 99

---

--	--

4112

88. Did the problem first occur  
during unusual conditions such  
as locally heavy rains, extremes  
of temperature, windstorms,  
earthquakes, or some other  
unusual condition?

YES . . . . . 1 4113

NO . . . . . 0

89. Has (PROBLEM) been repaired or  
replaced?

YES . . \*GO TO Q.96\*. . . . 1 4121

NO . . . . . 0

90. Did you obtain an estimate of  
how much it would cost to have  
(PROBLEM) repaired or replaced?

YES . . . . . 1

NO . . \*GO TC Q.103\* . . . 0

91. Did you get more than one estimate?

YES . . . . . 1

NO . . \*GO TO Q.93\* . . . 0

92. What was the highest estimate and  
the lowest estimate?

\$ 

--	--	--	--	--

 HIGHEST      \$ 

--	--	--	--	--

 LOWEST

92a. \*GO TO Q.94\*.

---

93. What was the estimate?

\$ 

--	--	--	--	--

94. Did (this/the lowest) estimate  
include any additional maintenance  
work or remodelling beyond what  
had to be done to take care of the  
problem?

YES . . . . . 1

About how much of the cost  
\$ \_\_\_\_\_ was just for this  
problem?

1 . . . . . \$ 

--	--	--	--

\*414

414

415

OR

2 . . . . . 

--	--

 PERCENT

95a. \*GO TO Q.103\*

---

96. What was the total cost of the  
repair, including parts and  
labor?

\$ 

--	--	--	--	--

4152

DON'T KNOW, CAN'T

ESTIMATE . .

. . . . \*GO TO Q.99\* . . . . DK

97. Did this cost include any additional  
maintenance work or remodelling beyond  
what had to be done to take care of the  
problem?

YES . . . . . 1 415

NO . . \*GO TO Q.101\* . . . 0

98. About how much of this cost of  
\$(COST FROM Q.96) was just for  
this problem?

\$ 

--	--	--	--

\*41

41

1 . . . . . \*GO TO Q.101\*

OR

--	--

PERCENT

41

100. How many total hours did they work  
on the job?

PROBE FOR HOURS EACH WORKED AND  
ENTER TOTAL.

--	--	--

101. Was any of the repair work on this  
problem done without charge, by  
yourself, your relatives or your friends?

YES . . . . . 1

NO . . \*GO TO Q.103\* . . . 0

102. About how many total unpaid hours  
did you or any friends or relatives  
put in on this job?

--	--	--

102a. About how much money do you think you  
saved by this unpaid work?

\$ 

--	--	--	--

102b. FOR OFFICE USE ONLY:

ESTIMATED REPAIR COST

\$ 

--	--	--	--

103. INTERVIEWER: IS THERE A FIFTH  
\$100 PROBLEM? (SEE Q.20)

YES . . . . . 1

PROBE FOR DETAILS ON SIZE (CAPACITY),  
MATERIALS, AREA COVERED, AND AGE OF  
EQUIPMENT.

--	--

5015

--	--

5017

--	--

5019

--	--

5021

--	--

5023

WITHIN FIRST MONTH . .  
2-3 MONTHS . . . . .  
4-6 MONTHS . . . . .  
7-12 MONTHS . . . . .  
13-24 MONTHS . . . . .  
25 MONTHS OR MORE . . .

106. Were you aware of the problem or  
aware that this might become a  
problem before you bought your  
house?

YES . . . . .

NO . . \*GO TO Q.108\* .

pointed out by the  
real estate agent,. . . . . 2

pointed out by an  
inspector, . . . . . 3

pointed out by a friend,. . . 4

or was it discovered  
by you or a member of  
your family? . . . . . 5

OTHER (SPECIFY) . . . . . 99

--	--

108. Did the problem first occur  
during unusual conditions such  
as locally heavy rains, extremes  
of temperature, windstorms,  
earthquakes, or some other  
unusual condition?

YES . . . . . 1

NO . . . . . 0

109. Has (PROBLEM) been repaired or  
replaced?

YES . . \*GO TO Q.116\* . . . 1

NO . . . . . 0

YES . . . . . 1 50

NO . . \*GO TO Q.123\* . . . 0

111. Did you get more than one estimate?

YES . . . . . 1 50

NO . . \*GO TO Q.113\* . . . 0

112. What was the highest estimate and  
the lowest estimate?

\$ 

--	--	--	--	--

 HIGHEST      \$ 

--	--	--	--	--

 LOWEST 50 50

112a. \*GO TO Q.114\*.

---

113. What was the estimate?

\$ 

--	--	--	--	--

 50

114. Did (this/the lowest) estimate  
include any additional maintenance  
work or remodelling beyond what had  
to be done to take care of the  
problem?

YES . . . . . 1 50

NO . . \*GO TO Q.123\* . . . 0



About how much of the estimate of  
\$\_\_\_\_\_ was just for this  
problem?

1 . . . . . \$      5058  
5060

OR

2 . . . . .   PERCENT 5064

a. \*GO TO Q.123\*

---

. What was the total cost of the  
repair, including parts and  
labor?

\$      5066

DON'T KNOW, CAN'T  
ESTIMATE . .  
. . . . \*GO TO Q.119\* . . . DK

. Did this cost include any additional  
maintenance work or remodelling beyond  
what had to be done to take care of  
the problem?

YES . . . . . '1 5071

NO . . \*GO TO Q.121\* . . . 0

. About how much of this cost of  
\$(COST FROM Q.116) was just for  
this problem?

1 . . . . . \$      5073  
5075  
\*GO TO Q.121\*

OR

120. How many total hours did they work  
on the job?

PROBE FOR HOURS EACH WORKED AND  
ENTER TOTAL.

--	--	--

121. Was any of the repair work on this  
problem done without charge, by yourself,  
your relatives or your friends?

YES . . . . . 1

NO . . \*GO TO Q.123\* . . . 0

122. About how many total unpaid hours  
did you or any friends or relatives  
put in on this job?

--	--	--

122a. About how much money do you think you  
saved by this unpaid work?

\$ 

--	--	--	--

122b. FOR OFFICE USE ONLY:

ESTIMATED REPAIR COST

\$ 

--	--	--	--

123. INTERVIEWER: IS THERE A SIXTH  
\$100 PROBLEM? (SEE Q.20)

YES . . . . . 1

describe what the problem was, how it happened, and what had to be done or may have to be done?

PROBE FOR DETAILS ON SIZE (CAPACITY),  
MATERIALS, AREA COVERED, AND AGE OF  
EQUIPMENT.

		5101
		5103
		5105
		5107
		5109

WITHIN FIRST MONTH . . . . .	1
2-3 MONTHS . . . . .	2
4-6 MONTHS . . . . .	5
7-12 MONTHS . . . . .	9
13-24 MONTHS . . . . .	18
25 MONTHS OR MORE . . . . .	24

126. Were you aware of the problem or  
aware that this might become a  
problem before you bought your  
house?

YES . . . . .	1
NO . . *GO TO Q.128* . . . .	0

the problem? Was it . . .

pointed out by the previous owner, . . . . .	1	5115
pointed out by the real estate agent, . . . . .	2	
pointed out by an inspector, . . . . .	3	
pointed out by a friend, . . . . .	4	
or was it discovered by you or a member of your family? . . . . .	5	
OTHER (SPECIFY) . . . . .	99	

28. Did the problem first occur  
during unusual conditions such  
as locally heavy rains, extremes  
of temperature, windstorms,  
earthquakes, or some other  
unusual condition?

YES . . . . .	1	5119
NO . . . . .	0	

29. Has (PROBLEM) been repaired or  
replaced?

YES . . *GO TO Q.136* . . . . .	1	5121
NO . . . . .	0	

130. Did you obtain an estimate of how much it would cost to have (PROBLEM) repaired or replaced?

YES . . . . .

NO . . \*GO TO Q.144\* . . .

131. Did you get more than one estimate?

YES . . . . .

NO . . \*GO TO Q.133\* . . .

132. What was the highest estimate and the lowest estimate?

\$ 

--	--	--	--	--

  
HIGHEST

\$ 

--	--	--	--	--

  
LOWEST

132a. \*GO TO Q.134\*

---

133. What was the estimate?

\$ 

--	--	--	--	--

134. Did (this/the lowest) estimate include any additional maintenance work or remodelling beyond what had to be done to take care of the problem?

YES . . . . .

NO . . \*GO TO Q.144\* . . .

About how much of the estimate of  
\$ \_\_\_\_\_ was just for this  
problem?

1 . . . . . \$ 

--	--	--	--

\*5144

5146

5150

OR

2 . . . . . 

--	--

 PERCENT

a. \*GO TO Q.144\*.

---

What was the total cost of the  
repair, including parts and  
labor?

\$ 

--	--	--	--	--	--

5152

DON'T KNOW, CAN'T

ESTIMATE . .

. . . . \*GO TO Q.139\* . . . DK

Did this cost include any additional maintenance  
work or remodelling beyond what had to be done  
to take care of the problem?

YES . . . . . 1

5157

NO . . \*GO TO Q.141\* . . . 0

About how much of this cost of  
\$(COST FROM Q.136) was just for  
this problem?

1 . . . . . \$ 

--	--	--	--

  
\*GO TO Q.141\*

\*5159

5161

5165

OR

--	--

--	--

140. How many total hours did they work on the job?

PROBE FOR HOURS EACH WORKED AND  
ENTER TOTAL.

--	--	--

141. Was any of the repair work on this problem done without charge, by yourself, your relatives or your friends?

YES . . . . . 1

NO . . \*GO TO Q.144\* . . . 0

142. About how many total unpaid hours did you or any friends or relatives put in on this job?

--	--	--

143. About how much money do you think you saved by this unpaid work?

\$ 

--	--	--	--

143a. FOR OFFICE USE ONLY:

ESTIMATED REPAIR COST

\$ 

--	--	--	--



period of time?

IF MORE THAN ONE \$100 PROBLEM:

Have any of the problems you've just told me about caused you to have to move out of the house for any period of time?

YES . . . . . 1

NO . . \*GO TO Q.148\* . . . 0

145. Which problem or problems was that?

CIRCLE ALL  
THAT APPLY.

146. At that time, did you have to pay for other living quarters, such as staying in a motel?

IF NO FOR ALL  
PROBLEMS, GO TO  
Q.150.

147. How much altogether did it cost you to live outside your house during this time, including meals or hotel bills and meals?

PROBLEM NUMBER:

1 p.10

2 p.15

3 p.21

4 p.27

5 p.33

6 p.39

NO  
0

YES  
1



\$

--	--	--	--	--



\$

--	--	--	--	--



\$

--	--	--	--	--



\$

--	--	--	--	--



\$

--	--	--	--	--



\$

--	--	--	--	--

149. How many rooms are there in this house? Count the kitchen but please do not count bathrooms, halls, porches, or unfinished attics and basements.

ROOMS

150. All told, how many people live in this house, counting roomers, children and infants?

PEOPLE

150a. \*GO TO Q.153\*

151. Counting all the rooms in all apartments, how many rooms are there in the whole house? Count kitchens but please do not count bathrooms, halls, porches, or unfinished attics and basements.

ROOMS

152. Counting all apartments, how many people live in the whole house, counting roomers, children, and infants?

PEOPLE

153. About how old is this house?

YEARS

\*GO TO Q.154\*

that you have owned, including  
this one?

--	--

 # OF HOMES

155. Including land but not including  
closing costs, what was the  
purchase price of this house?

\$ 

--	--	--

 , 

--	--	--

156. Did the purchase price include more  
than 3 acres of land?

YES . . . . . 1

NO . . . \*GO TO Q.158\* . . . . . 0

157. How many acres was it?

--	--	--	--

158. Where is your house located . . .

In a medium or large city,. . 1

In a suburb of a city,. . . . 2

In a small city or town,. . . . 3

Or in a rural area? . . . . . 4

159. The few remaining questions will let us group your answers with those of similar respondents.

What was the last grade or class the chief wage earner of your household completed in school?

8th GRADE OR LESS . . . . . 1  
HIGH SCHOOL INCOMPLETE  
(GRADES 9-11) . . . . . 2  
HS GRADUATE . . . . . 3  
COLLEGE INCOMPLETE  
(LESS THAN 4 YEARS) . . . . . 4  
COLLEGE GRADUATE . . . . . 5  
POST GRADUATE . . . . . 6

160. May I have his or her age?

YEARS

161. How much was your total family income before taxes in 1976. including all members of your immediate family living in your household?

PROBE: Your best estimate will be fine.

\$

REFUSED . . . . . RF

INTERVIEWER CHECK:

R IS MALE . . . . . 1

61

R IS FEMALE . . . . . 0

<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	1	AM	
						2	PM
TIME ENDED							

61



Hello, my name is \_\_\_\_\_ and I'm callin  
from Mathematica Policy Research in Princeton, New Jersey, ab  
a letter that was sent to you from the Department of Housing  
Urban Development concerning a study we're doing on houses th  
were bought in your county since December 1976.

May I speak to (NAME[S] OF HOMEOWNER[S])?

IF NOT HOME, SCHEDULE CALLBACK.

IF NO SUCH NAME AT THIS NUMBER, END INTERVIEW.

<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	1 AM	2 0 2 2
<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	2 PM	2 0 2 6
TIME BEGAN						

WHEN YOU GET HOMEOWNER, REPEAT INTRODUCTION.

INTERVIEWER: CIRCLE ONE:

R REPORTED RECEIVING LETTER . . . . . 1

R REPORTED NOT RECEIVING LETTER . . . . . 2

R DID NOT MENTION LETTER. . . . . 3

THEN SAY:

I am about to ask some questions to help complete the study  
required by the Housing Authorization Act of 1976. The data  
collected will be used by the Department of Housing and Urban  
Development and Mathematica Policy Research to complete the s  
This information will be held strictly confidential. The in-

RENT . . . \*TERMINATE\* . . .

IF RENT, END INTERVIEW BY SAYING:  
In this survey we are only  
interviewing homeowners. Thank  
you for your time.

1b. Is this a condominium or cooperative, or a mobile

YES . . . . \*TERMINATE\* . . .

NO . . . . .

IF YES, END INTERVIEW BY SAYING:  
In this survey we are not interviewing owners  
of cooperatives or condominiums, or mobile  
homes. Thank you for your time.

1c. Does this house have an attached  
commercial establishment?

YES . . . . \*TERMINATE\* . . .

NO . . . . .

IF YES, END INTERVIEW BY SAYING:  
In this survey we are inter-  
viewing owners of only residential  
dwellings. Thank you for your time.

2. Are you the first owner of this  
house?

YES . . . . \*TERMINATE\* . . .

NO . . . . .



NO . . . \*TERMINATE\* . . . 0

IF NO, END INTERVIEW BY SAYING:  
In this survey we are only  
interviewing people who bought  
their homes since November.  
Thank you for your time.

4. ASK OF COUNTY RECORDS SAMPLE  
ONLY. CIRCLE NA IF FHA SAMPLE:

Do you have an FHA mortgage?

YES . . . \*TERMINATE\* . . . 1

NO . . . . . 0

FHA SAMPLE . . . . . NA

IF YES, END INTERVIEW BY SAYING:  
In this survey, we are not  
interviewing people with FHA  
mortgages. Thank you for  
your time.

5. Is this a single family house?

YES . . . \*GO TO Q.8\* . . . 1

NO . . . . . 0

. . . . .	*GO TO Q.8*	. . . . .	1
3 FAMILY.	.		
. . . . .	*GO TO Q.8*	. . . . .	2
4 FAMILY.	.		
. . . . .	*GO TO Q.8*	. . . . .	3
MORE THAN 4	. . . . .	. . . . .	4

Are there more than 4 apartments?

YES . . .	*TERMINATE*	. . . . .	1
NO . . . . .		. . . . .	0

IF YES, END INTERVIEW BY SAYING:  
 In this survey we are interviewing  
 only people who own smaller houses.  
 Thank you for your time.

about the purchase, repair and maintenance of the house. Which members of your household are primarily involved in making these decisions?

MALE HEAD OF HOUSEHOLD. .  
ONLY. . . \*GO TO Q.b\* . . . . 1

FEMALE HEAD OF HOUSEHOLD. .  
ONLY. . . \*GO TO Q.c\* . . . . 2

BOTH MALE AND FEMALE  
HEAD OF HOUSEHOLD (CHECK  
FORM TO DETERMINE WHOM  
TO INTERVIEW) . .  
. . . . . \*GO TO Q.d\* . . . . 3

OTHER . . \*GO TO Q.8a\*. . . 99

- a. May I have the age of each one,  
starting with the oldest?  
INTERVIEW OLDEST ONE AT  
HOME. GO TO Q.d.

CODERS ONLY

--	--

a. 

--	--

 b. 

--	--

 c. 

--	--

 d. 

--	--

- b. ASK TO SPEAK TO MALE HEAD  
OF HOUSEHOLD, IF OTHER THAN  
RESPONDENT. IF MALE HEAD  
NOT HOME, MAKE APPOINTMENT  
FOR CALLBACK. GO TO Q.d.

- c. ASK TO SPEAK TO FEMALE HEAD  
OF HOUSEHOLD, IF OTHER THAN  
RESPONDENT. IF FEMALE HEAD  
NOT HOME, MAKE APPOINTMENT  
FOR CALLBACK. GO TO Q.d.

- d. REPEAT INTRODUCTION AND

They do this to find out if there  
is any equipment that needs repair,  
or if any parts of the house are unsound.

- a. Have you ever hired someone for  
this purpose?

YES . . . . . 1 2

NO . . \*GO TO Q.10\* . . . 0

- b. Was that for this house you now  
live in, or for another house?

THIS HOUSE . . . . . 1 2

THIS AND OTHER HOUSE . . . 2

OTHER HOUSE . .  
. . . . \*GO TO Q.11\* . . . 3

- c. About how much did the inspection  
for this house cost--was it . . .

under \$50, . . . . . 1 2

over \$50 but under  
\$100, . . . . . 2

or was it \$100 or more? . . 3

- d. \*GO TO Q.11\*
- 

10. At the time you bought this house  
you now live in, had you ever heard  
or read about firms that specialize  
in this kind of inspection?

that cost, if you were thinking about buying a house today, how likely is it that you would first hire a firm to inspect it for you--absolutely certain, very likely, possibly, unlikely or very unlikely?

ABSOLUTELY CERTAIN . . . . .  
VERY LIKELY . . . . .  
POSSIBLY . . . . .  
UNLIKELY . . . . .  
VERY UNLIKELY . . . . .  
DON'T KNOW . . . . .

12. When buying a house from a previous owner, it is also possible to buy a warranty on the condition of its heating, plumbing, or electrical equipment, and on its foundation, walls, floors and roof. If after you move in you discover it is necessary to repair or replace any of these items, the warranty will cover the cost.

Have you ever heard of this kind of warranty before now?

YES . . . . .  
NO . . \*GO TO Q.14\* . . . . .

13. Have you ever bought such a warranty?

YES . . . . .  
NO . . . . .

walls, floors, and roof.

The second plan covers major equipment--the plumbing, heating, and electrical systems.

The third plan covers major appliances--range, dishwasher, refrigerator.

a. If the price was the same, which would be your first choice--the plan that covers the main structure, or the plan that covers major equipment, or the plan that covers major appliances?

b. Which would be your second choice?

c. Your third choice?

	Q14a FIRST <u>CHOICE</u>	Q14b SECOND <u>CHOICE</u>	Q14c THIRD <u>CHOICE</u>
MAIN STRUCTURE . . . . .	1	2	
MAJOR EQUIPMENT . . . . .	1	2	
MAJOR APPLIANCES . . . . .	1	2	

15. Under some warranty plans, when repairs are necessary you arrange to have them made and are reimbursed for the costs.

Under other plans, you call the warranty firm and they send someone to make the repairs.

Would you rather have a plan in which--

Some plans cost more to buy, but if you have repair expenses, you only have to pay the first \$50 for each claim.

Other plans cost less to buy, but if you have repair expenses you have to pay the first \$200 for each claim.

Which type of plan would you be more likely to prefer?

COSTS MORE, PAY FIRST \$50 . 1

COSTS LESS, PAY FIRST  
\$200 . . . . . 2

DON'T KNOW . . . . . DK

17. Some people think it is more important to get a detailed inspection report on a house's condition to help them decide how much to offer for it. Other people think it is more important to get a warranty on a house to protect them against the cost of unexpected repairs after they buy it.

a. Which would be more important to you--to get a detailed inspection report before you buy a house, or to have the protection of a warranty after you buy it?

DETAILED INSPECTION  
REPORT . . . . . 1

WARRANTY . .  
. . . . \*GO TO Q.17d\* . . . 2

DON'T KNOW . .  
. . . . \*GO TO Q.18\* . . DK

Would it be important to you to  
get such a warranty in addition to  
the inspection report?

YES . . . . . 1 208

NO . . . . . 0

DON'T KNOW . . . . . DK

c. \*GO TO Q.18\*

---

d. Some firms offer a combination inspection and warranty,  
so that you get a detailed inspection report before  
you buy a house plus a warranty on only those items  
reported to be in good condition.

Which would be more important to you--  
to get the detailed inspection report  
with such a warranty, or, to get a  
warranty that covers all items  
without any inspection?

DETAILED INSPECTION  
REPORT WITH WARRANTY . . . 1 208

WARRANTY/NO INSPECTION . . 2

DON'T KNOW . . . . . DK

18. Now I'd like to get your reaction to four specific  
plans and their cost. Each plan differs regarding  
what parts of the house are covered, whether you get  
a detailed inspection report, and the cost.

PLANS F, J, M AND Q APPEAR ON THE NEXT FOUR PAGES.  
THE ORDER IN WHICH THEY APPEAR DIFFERS IN EACH  
QUESTIONNAIRE. ASK ABOUT EACH PLAN IN THE ORDER IN  
WHICH THEY APPEAR IN THIS QUESTIONNAIRE. AFTER YOU



absolutely certain, . . . . .  
very likely, . . . . .  
possibly, . . . . . \*GO TO Q.d\* . . . . .  
unlikely, or . . . . . \*GO TO Q.d\* . . . . .  
very unlikely? . . . . . \*GO TO Q.d\* . . . . .  
DON'T KNOW . . . . . \*GO TO Q.d\* . . . . .

- b. If the cost were \$250 for one year, how likely is it that you would buy this warranty?

absolutely certain, . . . \*GO TO Q.e\* . . . . .  
very likely, . . . . .  
possibly, . . . . .  
unlikely, or . . . . .  
very unlikely? . . . . .  
DON'T KNOW . . . . .

- c. INTERVIEWER: DID R ANSWER "VERY LIKELY" TO Q.a?

YES . . . . .  
NO . . . . . \*GO TO Q.e\* . . . . .

- d. If the cost were \$100 for the one year, how likely is it that you would buy this warranty?

absolutely certain, . . . . .  
very likely, . . . . .  
possibly, . . . . .  
unlikely, or . . . . .  
very unlikely? . . . . .  
DON'T KNOW . . . . .

- e. Suppose this warranty was available for a two year period. If the cost for two years of coverage was \$260, how likely is it that you would buy this plan?

absolutely certain, . . . . .  
very likely, . . . . .

very unlikely? . . . . .

DON'T KNOW . . . . .

g. INTERVIEWER: DID R ANSWER "VERY LIKELY" TO Q.e?

YES . . . . .

NO . . . . . \*GO TO Q.i\* . . .

h. If the cost for two years of warranty coverage was \$150;  
how likely is it that you would buy this warranty?

absolutely certain, . . . . .

very likely, . . . . .

possibly, . . . . .

unlikely, or . . . . .

very unlikely? . . . . .

DON'T KNOW . . . . .

i. GO TO NEXT PLAN. WHEN ALL FOUR PLANS (F, J, M & Q) HAVE BEEN ASKED, GO TO Q.19.

a. The cost for this plan is \$275 for one year. How likely is it that you would buy the warranty at this price?

- absolutely certain, . . . . .
- very likely, . . . . .
- possibly, . . . . . \*GO TO Q.d\* . . . . .
- unlikely, or . . . . . \*GO TO Q.d\* . . . . .
- very unlikely? . . . . . \*GO TO Q.d\* . . . . .
- DON'T KNOW . . . . . \*GO TO Q.d\* . . . . .

b. If the cost were \$350 for one year, how likely is it that you would buy this warranty?

- absolutely certain, . . . \*GO TO Q.e\* . . . . .
- very likely, . . . . .
- possibly, . . . . .
- unlikely, or . . . . .
- very unlikely? . . . . .
- DON'T KNOW . . . . .

c. INTERVIEWER: DID R ANSWER "VERY LIKELY" TO Q.a?

- YES . . . . .
- NO . . . . . \*GO TO Q.e\* . . . . .

d. If the cost were \$200 for the one year, how likely is it that you would buy this warranty?

- absolutely certain, . . . . .
- very likely, . . . . .
- possibly, . . . . .
- unlikely, or . . . . .
- very unlikely? . . . . .
- DON'T KNOW . . . . .

e. GO TO THE NEXT PLAN. WHEN ALL FOUR PLANS (F, J, M & Q) HAVE BEEN ASKED, GO TO Q.19.

absolutely certain, . . . . .  
very likely, . . . . .  
possibly, . . . . . \*GO TO Q.d\* . . . . .  
unlikely, or . . . . . \*GO TO Q.d\* . . . . .  
very unlikely? . . . . . \*GO TO Q.d\* . . . . .  
DON'T KNOW . . . . . \*GO TO Q.d\* . . . . .

- b. If the cost were \$250 for one year, how likely is it that  
you would buy this warranty?

absolutely certain, . . \*GO TO Q.e\* . . . . .  
very likely, . . . . .  
possibly, . . . . .  
unlikely, or . . . . .  
very unlikely? . . . . .  
DON'T KNOW . . . . .

- . INTERVIEWER: DID R ANSWER "VERY LIKELY" TO Q.a?

YES . . . . .  
NO . . . . . \*GO TO Q.e\* . . . . .

- d. If the cost were \$150 for the one year, how likely is it  
that you would buy this warranty?

absolutely certain, . . . . .  
very likely, . . . . .  
possibly, . . . . .  
unlikely, or . . . . .  
very unlikely? . . . . .  
DON'T KNOW . . . . .

- e. GO TO NEXT PLAN. WHEN ALL FOUR PLANS (F, J, M & Q) HAVE BEEN ASKED, GO TO Q.19.

absolutely certain, . . . . .  
very likely, . . . . .  
possibly, . . . . . \*GO TO Q.d\* . . . . .  
unlikely, or . . . . . \*GO TO Q.d\* . . . . .  
very unlikely? . . . . . \*GO TO Q.d\* . . . . .  
DON'T KNOW . . . . . \*GO TO Q.d\* . . . . .

c. If the cost were \$100 for one year, how likely is it that  
you would buy this warranty?

absolutely certain, . . . \*GO TO Q.e\* . . . . .  
very likely, . . . . .  
possibly, . . . . .  
unlikely, or . . . . .  
very unlikely? . . . . .  
DON'T KNOW . . . . .

c. INTERVIEWER: DID R ANSWER "VERY LIKELY" TO Q.a?

YES . . . . .  
NO . . . . . \*GO TO Q.e\* . . . . .

d. If the cost were \$50 for the one year, how likely is it that  
you would buy this warranty?

absolutely certain, . . . . .  
very likely, . . . . .  
possibly, . . . . .  
unlikely, or . . . . .  
very unlikely? . . . . .  
DON'T KNOW . . . . .

e. GO TO NEXT PLAN. WHEN ALL FOUR PLANS (F, J, M & Q) HAVE BEEN ASKED, GO TO Q.19.

for the first year after you move  
into a house, for the first two years,  
or for three years?

FIRST YEAR . . . . .	1	2130
TWO YEARS. . . . .	2	
THREE YEARS . . . . .	3	
DON'T KNOW . . . . .	DK	

20. Which would you prefer--paying for  
a warranty in one lump sum at the  
time you buy a house, four payments  
a year, or monthly payments?

LUMP SUM . . . . .	1	2132
FOUR PAYMENTS A YEAR . . . .	2	
MONTHLY PAYMENTS . . . . .	3	
DON'T KNOW . . . . .	DK	

21a. Since you bought this house, have  
you had any problems of the kind  
that would have been covered by  
any of the warranty plans we have  
been talking about, that cost \$50 or  
more for repairs or replacements?

YES . . . . .	1	2134
NO . . *GO TO Q.22a*	2	

	YES	NO	
a. the plumbing? . . . . .	1	0	21
b. the roof? . . . . .	1	0	21
c. the heating or air conditioning? . . .	1	0	21
d. the walls, ceiling, or floors? . . . . .	1	0	21
e. the foundation or basement? . . . . .	1	0	21
f. the electrical system? . . . . .	1	0	21
g. major appliances? . .	1	0	21
h. the septic system, water supply, or sewers? . . . . .	1	0	21
i. porches or detached buildings such as the garage? . . . . .	1	0	21
j. anything else I haven't mentioned? . .	1	0	21
(SPECIFY)			

---

--	--

NO . . . . \*GO TO Q.23\* . . . 0

Suppose that in order to get your FHA mortgage you had been required to buy a detailed inspection and one year warranty on the main structure of your house. The cost would be \$200 for the year. In that case would you still have applied for an FHA mortgage?

YES . . . . . 1 2160

YES, QUALIFIED (SPECIFY) . 2

---

--	--

 NO . . . . . 0 2162

Suppose you were selling your house and the real estate agent you went to asked that you, as the seller, buy and pay for an inspection and warranty, to make it easier to sell your house. Would you do so, or not?

YES . . . . . 1 2164

NO . . . . . 0

INTERVIEWER: IS THIS A ONE FAMILY HOUSE? (SEE Q.5)

YES . . . . . 1 2166

NO . . . . \*GO TO Q.27\* . . . 0



26. All told, how many people live in this house, counting roomers, children and infants?

--	--

PEOPLE 2

26a. \*GO TO Q.29\*

---

27. Counting all the rooms in all apartments, how many rooms are there in the whole house? Count kitchens but please do not count bathrooms, halls, porches, or unfinished attics and basements.

--	--

ROOMS 2

28. Counting all apartments, how many people live in the whole house, counting roomers, children and infants?

--	--

PEOPLE 2

29. About how old is this house?

--	--	--

YEARS 2

\*GO TO Q.30\*

DON'T KNOW . . . . . DK

29a. IF DON'T KNOW, ASK: What's your best estimate--is it . . .

less than 10 years old, . . 1 2

between 10 and 29  
years old . . . . . 2

or is it at least  
30 years old? . . . . . 3

32a. Did the purchase price include  
more than 3 acres of land?

YES . . . . . 1

NO . . . \*GO TO Q.33\*. . . 0

32b. How many acres was it?

,  ACRES

33. INTERVIEWER: IS R PART OF  
FHA SAMPLE?

YES . . . . . 1

NO . . . \*GO TO Q.35\*. . . 0

34. If you had wanted to, could  
you have gotten a mortgage  
other than FHA on this house?

YES . . . . . 1

NO . . . . . 0

35. Where is your house located...

In a medium or large city,. . . . 1

In a suburb of a city,. . . . . 2

In a small city or town,. . . . . 3

or in a rural area? . . . . . 4





	PHONE	
	NO PHONE	RECEIVED
DATE ASSIGNED		
INTERVIEWER		
2ND DATE ASSIGNED		
INTERVIEWER		
DATE OF FINAL CONTACT		
COMPLETE		
NON-CONTACT		
REFUSED		
INELIGIBLE		
WRONG NUMBER		
OTHER		
STATUS		
DATE		
INTERVIEWER		
PECONTACT		

DATE		TIME	INTERVIEWER	STATUS	COMMENTS (APPOINTMENT)
MO / DA	1 WEEKDAY 2 SAT. 3 SUN.	<input type="text"/> : <input type="text"/> 1 AM 2 PM		<input type="text"/>	
NC					
MO / DA	1 WEEKDAY 2 SAT. 3 SUN.	<input type="text"/> : <input type="text"/> 1 AM 2 PM		<input type="text"/>	
NC					
MO / DA	1 WEEKDAY 2 SAT. 3 SUN.	<input type="text"/> : <input type="text"/> 1 AM 2 PM		<input type="text"/>	
NC					
MO / DA	1 WEEKDAY 2 SAT. 3 SUN.	<input type="text"/> : <input type="text"/> 1 AM 2 PM		<input type="text"/>	
NC					
MO / DA	1 WEEKDAY 2 SAT. 3 SUN.	<input type="text"/> : <input type="text"/> 1 AM 2 PM		<input type="text"/>	
NC					
MO / DA	1 WEEKDAY 2 SAT. 3 SUN.	<input type="text"/> : <input type="text"/> 1 AM 2 PM		<input type="text"/>	
NC					

SIONAL  
S CODES:

COMPLETE  
NO ANSWER  
WRONG NUMBER  
CALLBACK  
BUSY  
PARTIAL-CALLBACK  
REFUSAL

FINAL STATUS CODES:

1 COMPLETE  
2 NONCONTACT  
3 REFUSAL  
4 INELIGIBLE  
5 WRONG NUMBER  
99 OTHER

FINAL STATUS

CODE:

1096

TOTAL #  
OF CONTACTS:

DATE OF  
INTERVIEW:  /

MO DA



## DATA FOR THE HOME WARRANTY AND INSPECTION STUDY

This attachment is organized in three sections. The first section covers information needed to supplement the Demand Survey--the survey that collects information on consumers' opinions about home warranty programs. The second section describes information needed to supplement the Needs Survey--the survey that asks households about problems they have encountered since buying a home which has required repairs or replacements. The third section describes information required to supplement the analysis of the likely costs of administering various types of warranty programs to varying numbers of people.



home warranty programs. We will not be able to test directly, however, whether these households actually would purchase such a plan at the time of buying or selling a home. Consequently, we would like to obtain some information from existing companies, such as yours, about their experience with consumers' preferences.

- (1) We would like to know about your experiences with various program features that you have tested. (Features may include payment mechanisms, items covered under the warranty, or any other methods of administering components of the program.)
  - (a) Which features that you have tested seem to appeal to home buyers?
  - (b) Which features seem to appeal to home sellers?
  - (c) Which features appeal to real estate agents?
  - (d) Which features are unpopular with one or more of these three groups.
- (2) We would like to know about your experiences with the apparent attractiveness of warranty programs to particular types of buyers or seller. Are any of the following groups more likely/less likely to be attracted to a home warranty program or to any of its features?
  - (a) those with older homes/newer homes?
  - (b) first-time buyers or sellers?
  - (c) any other groups you are aware of?
- (3) How do you think small increments in cost would affect the demand for different components of your plan among various subgroups in the buying/selling populations?

As part of our study, we are interviewing by telephone people who purchased existing dwellings two years ago, to determine their experiences with problems requiring repair or replacement of various components of the dwelling. For each of 11 repair claims categories, we will cross-tabulate the average repair/replacement rates by a number of characteristics of households, such as the age of the house, the size of the house, sales price and region of the country, for each of the two years (see Table 1 below).

TABLE 1

Claims Rates, by Housing Characteristics and Repair Type

Repair Type	Household Characteristic: Age of Hou		
	a	b	c
Plumbing Repairs			
Roof Repairs			
Heating System Repairs			
Cooling System Repairs			
Wall, Ceiling & Floor Repairs			
Foundation Repairs			
Electrical System Repairs			
Basement Moisture Problems			
Repairs on Major Appliances			
Water & Sewage System Repairs			

warranty program.

We would like to have information from existing warranty companies on their rates of claims for the categories of repairs they cover, among different types of households, as described in Table 1. We would use this confidential material to make judgments about the likelihood that our survey data reflect the rates of claims that one would anticipate in a large-scale program. We will not, however, include in our report any data on actual rates of claims experienced by specific existing companies.

### Claims Cost Data

We are planning to obtain data on the likely costs of claims by asking households who have experienced problems with their homes during the preceding two-year period to tell us how much it cost them to repair or replace each item to its original state. It is possible that repair costs for a random sample of households, like claims rates, would be somewhat lower than costs experienced in an actual program, if people with more severe problems do tend to be more likely than others to sign up for coverage. We would like to have information from existing warranty companies on their experience with average repair/replacement costs for each type of item they cover, with several categories of household types. Our objective is to compare the survey data we obtain against the range of repair costs experienced in existing programs. We will not publish claims costs for specific programs but will instead use this data as one means of assessing the reasonableness of our survey data.

As part of the demand analysis, we are determining the attractiveness to consumers of a number of possible home warranty program options. We plan to determine a range of likely costs for running these programs, including likely administrative costs for various numbers of policyholders. It would be helpful in analyzing these costs for us to obtain information from your experience with your program. First, we need basic descriptive information about your program. Then, we need information on "average" costs per unit of activity for each of the activities you perform.

We have identified six categories of administrative activities that could be performed by a home warranty company. The six activities we have identified are marketing, sales, inspection, claims certification, arbitration/conciliation and payments/repairs. These activities are defined as follows:

Marketing is performed to attract potential clients to the program, including such things as advertising, contacting clients or sources of clients, or testing various program features.

Sales is the process of negotiating the terms of the warranty with a prospective customer, up to and including filling out, signing, processing, and filing the warranty contract.

Inspection is the process of looking over all features of the dwelling unit that are potentially eligible for coverage under a warranty to ensure that they are in working order or otherwise eligible to be covered by the warranty.

Claims certification involves checking to be certain that an item claimed by the household for repair or replacement under the warranty is actually covered under the terms of the contract. This process may involve self-reporting by the claimant, inspection by a company representative to determine the validity of the claim, or some other process.

Arbitration or conciliation is the process by which a company resolves disputes by the claimant about the judgment on the claim made during the claims certification process. Some companies have no separate process for resolving claimants' disputes; others may provide for a special review board or other review mechanism.

Payments/repairs involves processing the claim following a judgment that it is valid. This processing may include all clerical and related activities up to and including mailing the

any specific administrative function. The second is a miscellaneous category of other activities and costs which may be important to the functioning of the program but which we may not have explicitly considered. Your assistance in identifying such activities will be most helpful.

Below, we outline the descriptive information and cost information that would be helpful for our analysis.

### Descriptive Information

1. What volume of business is done by your company?
2. What has been the rate of growth for your company? What are your growth projections?
3. What administrative functions does your company perform? How are they similar/different from the six categories we have identified?
4. What percentage of your total costs is allocated to each of these functions?
5. What is a reasonable range of overhead costs associated with performing the administrative activities required for your program?

### Cost Information

For each of the following functions, the information we need is summarized under the objective. Specific questions follow.

Objective: Obtain the costs of a unit of marketing activity (e.g., for one thousand policies) and determine how these costs might vary as the volume of policies increases.

1. Please describe your marketing activity. Is this activity performed by the company as a separate activity, is it combined with other activities, or is it performed for you by a separate organization? Is this activity concentrated in one basic location or dispersed? Are there any special factors that lead to higher or lower costs?
2. Is your marketing geared to a particular target number of policies or to a particular rate of growth?
3. How many person years of effort are/were spent on marketing during a given time period, for each category of personnel?
4. What is the average salary level for each personnel category (or specific salaries)?
5. How many completed units of work are there in the marketing department for each professional hour of work? (A completed unit of work might be number of contacts or some other means of performance.)
6. What are the amounts of other costs, for a given unit of work, or for a professional hour of work, or for the time period we are talking about, including the following costs:
  - travel
  - supplies and services
7. How would marketing costs vary, per unit of marketing activity, if you increased the size of the target group by 20 percent? 100 percent? 500 percent?

number of sales increases.

1. Please describe how this activity is performed. Is the sales activity performed within a department of the company, or is it performed by (an) other organization(s)? Are there special features that make costs exceptionally high or low?
2. Is your sales activity geared to a particular sales volume or rate of growth?
3. How many person years of effort are/were spent on sales during a given time period, for each category of personnel?
4. What is the average salary level for each personnel category (or specific salaries)?
5. How would sales costs vary, per sale, if you increased the size of the target group by 20 percent? 100 percent? 500 percent?

1. Some companies hire and train inspectors to perform this function, some contract inspections to an outside organization, some ask a real estate agent to inspect, and others ask the seller or buyer of the dwelling unit to certify that all relevant features are in working order. How does your company perform this function?
2. Could you describe for us how the inspection takes place:
  - (a) What items are inspected?
  - (b) What criteria are used to determine whether each inspected item "passes" or "fails"?
  - (c) How long does an inspection take (by house size)?
  - (d) What quality control procedures or measures are there to determine how well each inspector is doing? (What are the costs, per inspection, of performing quality control?)
  - (e) What proportions of each inspected item have been found to be ineligible for warranty coverage (over a given time period?)
3. Could you describe for us the qualifications and training required for your "average" inspector?
  - (a) What are the qualifications for the job?
  - (b) What are the costs of training for each hour of inspection (or some other measure that takes into account job turnover)? Describe these costs in terms of the following:
    - (1) How many hours of training time per inspector, by personnel category (e.g., trainer, trainees, other staff)?
    - (2) Salary level, by personnel category, per inspection?



5. What is the average salary level, for each employee category?
6. What are the amounts of additional costs, for each inspection including travel costs, supplies, and services?
7. How would inspection costs vary:
  - if inspectors spent 50 percent more/less time inspecting each dwelling?
  - if the volume of required inspections increased by 29 percent? 100 percent? 500 percent?
8. What are the likely trade-offs in costs between changes in the level of the inspection activity and claims rates or average values of claims?

1. Does your company have a separate arbitration or conciliation activity? How is this activity performed?
2. What numbers of cases are arbitrated during a given time period?
3. For an "average" arbitrated claim:
  - (a) How many person levels of effort are spent for each category of personnel?
  - (b) What is the average salary level for each
4. How would the cost of performing a claims arbitration vary if the number of required arbitrations increased by 10 percent? 50 percent? 100 percent?
5. What factors lead to higher/lower rates of required arbitrations?

1. How does your company perform the claims certification activity?
2. What number of claims are certified during, say, a one-month time period? (For what number of warranty holders is that number "typical" or "appropriate?")
3. What is the cost of certifying a claim:
  - (a) How many person hours, by personnel category, are required to certify a claim, on the average?
  - (b) What is the average salary level for each of these personnel categories?
4. What are the amounts of other costs, per claim certified, including:
  - travel
  - supplies and services
5. How would claims certification costs vary:
  - if claims rates were 10 percent higher? 50 percent higher?
  - if average claims were 10 percent higher? 50 percent higher? 100 percent higher?

1. Explain how this activity is performed. Is this activity performed by a department in the company, or wholly or partly by a separate company(ies)?
2. During a given time period, what was the number of claims/repairs processed?
3. For each claim/repair, what is the average amount of time spent by each category of personnel (e.g., clerical, claims processor, repair person, supervisors, etc.)?
4. What is the average salary level of people in each personnel category?
5. How would the costs of processing repairs or claims for payments vary if the number of such claims increased by 20 percent? 100 percent? 500 percent?



